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CONTENTS

THE MASSACHUSETTS MEDICAL SOCIETY

The Annual Discourse—The Physical Examination of Apparently Healthy Individuals: Its Importance, Limitations and Opportunities. By *Roger I. Lee, M.D.*, Cambridge, Mass..... 929

ORIGINAL ARTICLES

Early Diagnosis of the More Common Upper Abdominal Conditions. By *John B. Deaver, M.D.*, Philadelphia, Pa..... 937

An Obstetric Case Presenting an Unusual Group of Complications. By *Louis E. Phaneuf, M.D., F.A.C.S.*, Boston..... 942

A Preliminary Study of the Natural Position in Sleep and its Relation to the More Affected Lung in Pulmonary Tuberculosis. By *David Zacks, M.D., Olin S. Pettingill, M.D.*, and *A. H. Stanhope, M.D.*, Middleton, Mass..... 946

A Simple Blood Transfusion. By *Howard M. Clute, M.D.*, Boston..... 948

Observations on the Transfusion of Blood. By *Donald S. Adams, M.D.*, Worcester, Mass..... 949

Convalescence: V. The Winifred Masterson Burke Relief Foundation. By *John Bryant, M.D.*, Boston..... 951

EDITORIALS

Cesarean Section..... 962

Is There More for the State Board to Do?..... 964

Employment for Medical Students..... 964

Rickets in the Premature Infant..... 964

Tenth Anniversary of the Peter Bent Brigham Hospital..... 964

The Sheppard-Towner Act..... 965

Medical School Number of the Harvard Alumni Bulletin..... 965

For complete table of contents, see first text page.

For list of Officers of the Society for 1922-1923, see page viii of the Advertising Section. For Officers of the District Medical Societies, see page viii.

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TABLE OF CONTENTS

June 14, 1923

THE MASSACHUSETTS MEDICAL SOCIETY.

The Annual Discourse—The Physical Examination of Apparently Healthy Individuals: Its Importance, Limitations and Opportunities. By *Roger I. Lee, M.D.*, Cambridge, Mass.... 929

ORIGINAL ARTICLES.

Early Diagnosis of the More Common Upper Abdominal Conditions. By *John B. Deaver, M.D.*, Philadelphia, Pa..... 937

An Obstetric Case Presenting an Unusual Group of Complications. By *Louis E. Phaneuf, M.D., F.A.C.S.*, Boston..... 942

A Preliminary Study of the Natural Position in Sleep and its Relation to the More Affected Lung in Pulmonary Tuberculosis. By *David Zacks, M.D., Olin S. Pettingill, M.D.*, and *A. H. Stanhope, M.D.*, Middleton, Mass. 946

A Simple Blood Transfusion. By *Howard M. Clute, M.D.*, Boston 948

Observations on the Transfusion of Blood. By *Donald S. Adams, M.D.*, Worcester, Mass. 949

Convalescence: V. The Winifred Masterson Burke Relief Foundation. By *John Bryant, M.D.*, Boston..... 951

BOOK REVIEWS.

The Chemistry of Tuberculosis. By H. Gideon Wells, M.D., Lydia M. De Witt, M.D., Esmond R. Long, Ph.D..... 957

The New Psychology and the Teacher. By H. Crichton Miller, M.D. 957

Is Coué a Foe to Christianity? 957

The Patient's Viewpoint. By Palmee J. Flagg, M.D..... 958

Current Literature 958

EDITORIALS.

Cesarean Section..... 962

Is There More for the State Board To Do?..... 964

Employment for Medical Students 964

Rickets in the Premature Infant 964

Tenth Anniversary of the Peter Bent Brigham Hospital 964

The Sheppard-Towner Act..... 965

Medical School Number of the Harvard Alumni Bulletin..... 965

MISCELLANY.

An Appeal to the Medical Alumni of Dartmouth 966

Cycles of Pandemic Influenza 966

The Question of Garbage Disposal in Boston..... 966

Report of Lawrence General Hospital 967

Seventh Annual Report of the Providence City Hospital..... 967

Annual Report of the Cancer Commission of Harvard University 967

Massachusetts Society for Mental Hygiene 968

Registration under the Harrison Narcotic Law 968

Air Pollution 968

Fellowships in Psychiatry 968

Etiological Study of Anesthetic Death 969

The Greatest Therapeutic Nihilist 969

American Medical Association 969

Man's Long Quest 969

News Items 970

OBITUARY.

Thomas Burke Smith, M.D. 971

Stephen Casper Burton, M.D. 971

Recent Deaths 971

CORRESPONDENCE.

American Medical Aid for Russia. *W. S. Thayer, M.D.*..... 972

Foreign Letter. *Charles Greene Cumston*..... 972

The American Society for the Control of Cancer. *F. J. Osborne* 973

NOTICES.

Remember! 973

Employment for Medical Students 973

Clinical Demonstration at the Peter Bent Brigham Hospital.. 973

Harvard Medical Alumni Association 973

First Annual Report of Schick Toxin-antitoxin Activities of Boston Health Department 974

Cases Reported to Massachusetts Department of Public Health 974

Society Meetings 974

The Massachusetts Medical Society.

THE ANNUAL DISCOURSE.*

NOTE.—At an adjourned meeting of The Massachusetts Medical Society, held October 3, 1860, it was

Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

THE PHYSICAL EXAMINATION OF APPARENTLY HEALTHY INDIVIDUALS: ITS IMPORTANCE, LIMITATIONS AND OPPORTUNITIES.

BY ROGER I. LEE, M.D., CAMBRIDGE, MASS.

As a matter of custom it is usual to discuss health in terms of the opposite to health, that is, mortality, morbidity or defects. A community will boast of its health by exhibiting a low death rate, a low morbidity rate, or a scarcity of defects as found in the draft examinations.

At one stage in the world's history the avoidance of death was considered to be satisfactory evidence of health. Those were the days when epidemics and pestilences swept over the world and when people were anxious to expose themselves and their children to mild cases of a pestilence in the hope, often vain, that they might contract a mild form of the disease. In those days it hardly occurred to people that they might entirely escape a prevailing pestilence; the only thought was not to die of it. Of course there were certain individuals and certain groups of people that did not contract these great pestilences, but that did not seem to be within the realm of human wisdom to foresee or within human ability to achieve.

With the dawn of sanitary consciousness it began to be evident that illness was more than an act of Providence. Certain meager bits of information indicated that human agencies might be able to avert disease. For a long time these struggles were not particularly effective. Then more or less suddenly the nature of one great group of diseases, namely, the communicable diseases, became known, and with it came the hope of preventing all infectious diseases. This hope is still very far from being realized. Nevertheless, at the present time we do have sufficient knowledge to affect materially the ravages of certain infectious diseases. One may without undue rashness prophesy that the coming generation will, perhaps, see the end of certain of the now well-known infectious diseases. However, when we study, statistically, recent epidemics of influenza or of anterior pol-

*Read before the Massachusetts Medical Society, June 13, 1923.

iomyelitis or the endemic occurrence of pneumococcus pneumonia, we must appreciate our ignorance and impotence in some, at least, of the communicable diseases.

At the present time, our so-called civilized communities in the temperate zones have seemed to reach a nearly fixed level as far as mortality and morbidity rates are concerned. This level is in striking contrast to the rapid decline of these rates during the previous score or more years. There is, to be sure, a slight and definite improvement which can easily be detected, despite the fluctuations due to occasional interferences. The rapid improvement during the last part of the last century and the beginning of this century has been very largely in the avoidance of certain infections, most notably those spread by contaminated food and drink. The age period which has been most greatly benefited has been the age of infancy. Everywhere in the civilized world infant mortality has been tremendously reduced. It is the fashion to say that the reduction of infant mortality has been accompanied by an increase in the health problems of childhood because weak and puny infants now live to grow into rather delicate children. Our knowledge of the general processes of immunity, however, does not by any means entirely substantiate such a viewpoint, although there are certain data which may be regarded as supporting this assumption.

The civilized world of today, while continuing in a much more intensive fashion than ever before its battle against mortality and morbidity, is, in addition, directing its attention towards perfecting health. The present generation is no longer satisfied with the avoidance of death or with the prevention of disease. The public nowadays wants to enjoy the fullest possible measure of health. Not only is the safeguarding of health demanded, but the development of a state of better health is desired. The emphasis is being shifted from health, as a negative liability taken in the sense of freedom from illness, to health as a positive asset.

The physical examination in the ordinary state of one's health is taken to be one of the necessary foundation stones not only for disease prevention, but also for health development in this positive sense. It is obvious that the physical examination, a stock-taking, as it were, must be an essential preliminary to intelligent action in health development.

It has long been known that much could be learned concerning the human body by physical examination. It was certain a number of defects discovered at physical examination could be corrected. Almost at once a great wave of enthusiasm for physical examination appeared. Great things were predicted of the periodic physical examination. It was felt that life could be very definitely prolonged, since defects, which if neglected, might well be fatal, would be brought to light by these examinations and would be cured.

It was, furthermore, hoped as a natural result of physical examination, and particularly of repeated physical examinations, that directions for changes in habits of living might be available for those really interested in their health.

It was believed that the course of most chronic diseases might well be altered and life prolonged, provided there was early recognition. In favor of this view, there was considerable medical authority. Dr. Oliver Wendell Holmes of Boston had maintained with logic and humor the tenet that if one desired to live to be old, it was usually necessary to acquire a chronic and incurable disease, in consequence of which the individual so afflicted took care of himself and proceeded to outlive the well members of his family who were not so fortunately afflicted. Sir William Osler, then of Baltimore, had somewhat the same thought when he said in his picturesque fashion that a man was indeed fortunate who discovered at fifty that he had a trace of albumen in his urine. The public at large has taken very kindly to such ideas. It is a very popular form of humor to refer to a Chinese tradition, which does not seem to be really well authenticated, at least not in as far as the application is concerned, that the prime function of a physician is to maintain health, and that an illness should cause the physician to lose not only his position as attending physician, but also his head.

While the medical profession and the laity have taken up with enthusiasm the idea of periodic physical examination in health, nevertheless somehow in the application of this idea there is usually a sense of disappointment. There is often the feeling on the part of both the examiner and the examined that the positive results of the examination are, somehow, inadequate. Too often the favorite symptom remains somewhat of a mystery, at least as far as explicit advice concerning remedial measures is an index of the ability of the examiner to solve it.

Experience has shown that the physical examination, even if frequently repeated by competent men, may yet fail to disclose positively every disease in its earliest stages. It is one matter to reconstruct at the post-mortem table, the development of a disease, with its symptomatology, and quite another matter to do the same thing in advance. Those symptoms which seem so illuminating in retrospect are often quite insignificant in the early stages. Again, the inroads of certain progressive chronic diseases are often quite uninfluenced by any therapeutic measures with which we are now familiar. It is disconcerting that we must accept, for example, that the first symptom or sign of certain cases of malignant disease is the appearance of a metastasis.

Furthermore, in the state of our present

knowledge, it must be accepted that the prevention of certain infectious diseases is not within the powers of the present-day sanitary knowledge under the usual circumstances of social environment. Individuals coming for physical examination and the requisite advice concerning the prevention of "colds" and influenza, for example, can, of course, be given important general directions. It is unsafe, however, to give individuals, either singly or as a group, any positive assurance that they can by the adoption of any known precautions, be certain to escape these infections, provided their activities mingle with those of the general community.

It is perhaps on account of the extravagant claims made for the results of physical examinations that certain of these examinations have furnished results which have seemed so inadequate and so disappointing. It is obviously desirable that such a valuable procedure should not be put into disrepute merely because the results are very definitely limited in their scope. Unless the precise situation is carefully explained to the individuals examined and to those persons who are instrumental in arranging the examination of large groups, there will be just cause for dissatisfaction. In this connection, it seems to me always important to emphasize the fact that the physical examination has a value beside that of being the starting point for the correction of discovered defects. In the first place, the physical examination is of very great value in the instruction it gives in rules of health to all of those who are examined. That should be an important feature of the physical examination. The ideal method of health instruction is the individual instruction between doctor and patient. In the second place, the physical examination is perhaps just as important in ridding a person of notions that they have defects, as it is in discovering the defects which are unknown to the individual. On the whole, our experience at Harvard University leads us to think that perhaps physical examination may often do the greatest good in establishing the fact that the individual is entirely sound. Human nature would seem to be such that most people take kindly to the idea that they have a serious ailment. One has only to listen to the conversation of patients in any hospital to be convinced that the patient who can boast of the most serious disease and the most serious complications is, on the whole, the most admired of the group. After all, the success of quackery depends largely upon convincing a well person that he or she is ill. Subsequent recovery and the testimonial which is so essential to the existence of quackery naturally follow, if the individual has never actually had a disease. In my opinion, more emphasis might be placed on the value of physical examinations in determining that people are actually healthy, and less emphasis might be placed on the certainty of discovering defects, with the assurance that these defects can be corrected.

Additional experience with physical examinations has disclosed other factors which have been the source of dissatisfaction and confusion. There is as yet no general agreement as to what constitutes a normal individual. Our standards of health have been erected entirely on the foundation of the physicians' findings in sick people.

Physicians were formerly only consulted when the patient had symptoms. Physicians associated the signs discovered by physical examination with those symptoms. It was natural enough to go one step further and conclude that the same signs in the well tended eventually to be associated with the symptoms of manifest disease. But continued experience does not indicate that such a generalization is always safe. For example, there are among the cardiac irregularities certain types which are quite consistent with a normal heart. Then, too, an elevated blood pressure may be transitory or, even if persistent, may not be incompatible with years of well being. Furthermore, in consequence of the deductions from the angle of the sick individual, the importance of certain defects has been distorted. The relation of decayed teeth to indigestion or arthritis is unquestioned in certain individuals. But the freedom from such symptoms of large numbers of people with decayed teeth is illuminating and should correct the perspective of even the more militant crusaders of dental hygiene.

The early attempts to get data based on the examination of large groups of individuals disclose the need of a health standard. The statistics of physical examinations of large groups of individuals are often startling. For example, it is maintained that 80 per cent. of the school children of a very large State presented some form of defect. In analyzing these defects it was found that the presence or absence of defects was determined by the particular standard which was adopted. An absent tooth, a slightly decayed tooth, tonsils that did not entirely please the examiner, too little or too great weight for the height and age, etc., etc., were often reported as defects.

The country as a whole was considerably alarmed by the figures of the physical examinations of the draft, which showed that nearly 40 per cent. of individuals were rejected for army service on account of physical defects. That was, indeed, a very sad indictment of the young manhood of this country, when 40 per cent. of them were found unfit to bear arms in defense of their country. These figures, however, bring out the point that for the army a particular standard is adopted, which does not necessarily apply to every industry in the country. Some of us who had to do with the examination of recruits for the army, particularly in the early days, recall with exasperation the frequent changes in the standards of eye examination,

for example. Doubtless it has a good deal to commend it, that a soldier should have good eyesight in both eyes without the aid of glasses. Nevertheless, he may be entirely fit for many occupations provided his bad eyesight is corrected by suitable glasses. In the old army examination varicocele was a cause for rejection. The experience of the British and French armies showed that the physical standard could be safely considerably lowered without seriously impairing the physical efficiency of the army as a whole. Of course there are other considerations concerning physical examinations for the army. The country is now burdened with the care of men who were admitted to the army with existing defects, which were either not discovered or passed by. It is a fact that a soldier with a defect may ignore or hide a defect at home with the enthusiasm of enlisting, but he has also been known to demonstrate the same defect with vociferousness when he did not feel like carrying out some particularly disagreeable or dangerous duty. The same defect may be affectionately treasured as an important financial asset at the time of discharge.

From the foregoing I trust that it is evident that statistical data derived from physical examinations must be interpreted in the light of the arbitrary standards which are used, and, furthermore, that there may be complicating factors, such as pensions in the army, as an example, which need consideration in the adoption of a standard of physical fitness for a given occupation.

There are certain defects, of course, which are manifest and which are accepted by all medical authorities. I mean such defects as well-marked heart disease, well-marked tuberculosis, protruding hernia, and the like. There are also certain cases in which there would be very marked disagreement as to the presence or absence of these same defects. If we add together all of the defects which would be reasonably certainly accepted as the evidence of organic disease, we find only a small percentage. In the figures which I have collected for students at Harvard College the incidence of undoubted organic disease is under 5 per cent. Heart disease is under 2 per cent. It may be argued that the Harvard College student is not a fair sample of the country at large; nevertheless, the analysis of other figures at this age do not show any great change. In any event, the amount of disease or defects which can be accepted as organic is not considerable.

These figures, of course, do not include the defects of the eye which are corrected. Our figures indicate that about 40 per cent. of young men in occupations requiring an intensive use of the eyes need glasses. Some 38 per cent. of Harvard freshmen already wear glasses, and after four years of college work the percentage is 42 per cent. The additional small percentage is represented by minor refractive errors which do not require correction unless associated with symptoms according to the present ophthalmologic doctrine.

Our examiners at Harvard University find little trouble with the teeth. The dental propaganda seems fairly effective. While we do find individual instances of neglected teeth, or perhaps more frequently, instances of neglected individual teeth, yet teeth as a whole are fairly well cared for in most of our communities. This statement may not go unchallenged. At the present moment teeth are a controversial topic, and one finds it extraordinarily difficult to reconcile the following evidence with certain extreme views that so many ailments are traceable to pathological conditions in or around the teeth. The British Tommy, for example, got along with no tooth brush, and with very few teeth, which were mostly decayed as well as neglected. It was not apparent that the British Tommy had many more of the ailments that are ascribed to teeth than the average American doughboy with his well-kept teeth.

There are only a few students at Harvard University who have obviously badly diseased tonsils. It is extremely difficult or impossible to fix the borderline between diseased and normal tonsils. Fifty per cent. of the students who come to Harvard College have had some sort of operation on their tonsils. That there are not left many cases still requiring operation is further attested to by the fact that tonsillectomy is relatively uncommon during the subsequent course of these students. Certainly here we find evidence of the extraordinary effectiveness of popular educational measures concerning tonsils. It is a question, that I do not believe can be answered at the present time, whether perhaps the pendulum has not swung too far in the promiscuous removal of tonsils. On the one hand, one has the extraordinary fact that every other boy in the last two freshman classes at Harvard was subjected to an operation to remedy some supposed defect found by physical examination. On the other hand, physicians know only too well the organic complications of diseased tonsils.

In the examples of data derived from the examination of the eyes, teeth and tonsils, one finds illustrated some of the reasons for confusion in interpreting the results of physical examinations. Certainly the perfect pair of eyes, the perfect set of teeth, and the perfect nasopharynx are rarities. It is also certain that in the existing environment a goodly proportion of individuals need glasses, dentistry, and tonsillectomy. What those proportions are, and how closely they should approach 100 per cent., is still a mooted question. Yet the standards of physical examination of these organs depend on an answer to this question. At present the attempted answer must be confessedly arbitrary and will be bound to vary within wide limits.

One could go through each item of a physical

examination and illustrate a lack of standard with each item. I will, however, take time to discuss briefly two items concerning which we can, perhaps, speak with some definiteness. Certain medical examiners are very prone to find so-called "heart disease," and they base their diagnosis of heart disease on the presence of murmurs or of irregularities. We have at the present time instruments of precision which, while not infallible, yet greatly assist us in differentiating organic disease from functional disturbance of the heart. These instruments of precision, taken with continued experience, show that murmurs and irregularities are not necessarily evidence of an organic heart disease. As a matter of fact, such cardiac symptoms as shortness of breath, precordial pain, inability to perform any considerable effort, even when associated with a constantly rapid pulse, may not be certain evidence of organic heart disease. In the recent war attention was focussed once more on a condition described by Da Costa as "soldier's heart." This condition was designated as "effort syndrome" in the last war, and the general consensus of opinion was that the heart was not organically damaged, and that the disturbance was in the central nervous system. These cases are actually prevented by their disabling symptoms from taking strenuous exercise. They are not fit, but the disturbance seems to be a functional one and does not seem to be associated with organic changes in the heart itself. We have found in our work at Harvard University instances of this sort repeatedly. As a rule, the case presented comes on account of difficulty in participating in athletics, inasmuch as with ordinary exertion the mild and common cases of "effort syndrome" present no symptoms.

An investigation is now under way in which we attempt to bring out definite systolic murmurs in presumably normal hearts. We find that in the recumbent position after strong expiration, 70 per cent. of unselected normal individuals will present a definite systolic murmur, usually at the pulmonic area, occasionally at the apex. This murmur is not ordinarily transmitted. This murmur may be found in athletes, but it is of interest that it is not found in a group selected for unusual physical and athletic prowess. Owing to an inadequate understanding of "effort syndrome" and of the significance of systolic murmurs and of cardiac irregularities many individuals are now improperly recorded as having organic valvular heart disease. It is much more than a scientific quibble to insist on this point, since the presence or absence of an organic heart lesion may determine in many individuals the trend of their subsequent careers. Furthermore, such erroneous diagnoses, often accompanied by extreme advice concerning the dangers attendant on heart disease, result in more or less justifiable doubts in regard to the value of physical examinations when a subsequent correction of the diagnosis is made. On this particular point, Sir James Mackenzie speaks with feeling and emphasis. Of course mistakes and errors in judgment will always occur, but unless physical examinations are to be discredited, all available scientific data must be utilized for such an important decision as the presence or absence of organic heart disease.

In our attempt to create a standard of health in the particular group under our supervision at Harvard University we have studied albuminuria in young men. Albumen in the urine was formerly regarded as almost certain evidence of Bright's disease. With the examination of large groups of people it was disclosed that albuminuria occurred not infrequently among young people as a temporary finding. In our examinations we found albumen in about 6 per cent. of our young men. Some of these cases have been followed for a number of years, and we are unable to trace any relation between the presence of albumen in the urine and organic disease of the kidneys. There are occasionally cases of kidney disease, but these cases are readily diagnosticated by the usual criteria. It is of considerable interest, however, that albuminuria is rarely found in those young men who are endowed with splendid physique. Furthermore, a persistent albuminuria of the orthostatic variety, that is to say albuminuria which is only absent when the individual is quiet in bed, is apparently usually associated with a very poor posture. It is well known that albuminuria can probably be produced in any normal individual by prolonged severe exertion. A reasonable explanation of functional orthostatic albuminuria would seem to be that in certain individuals albuminuria appeared at a very much lower level of physical activity, namely, the trifling activity of the daily occupation without violent exertion.

It is, perhaps, largely on account of this lack of defined standards of health that physical examinations have not yielded the results so confidently expected of them. If we take the fixed standard of certain organic pathology, one will find, as we have stated, that the percentage of actual organic defects is very low, probably in the age group such as in college about 5 per cent. If, on the other hand, we accept as a standard any deviation from an arbitrary fixed normal function, and include as defects such findings as albuminuria, systolic murmurs, etc., it is very easy to push the percentage of defects, not only as high as 80 per cent., a figure which was attained in school children, but above 90 per cent. On account of these wide discrepancies much confusion has naturally resulted. Even when refractive errors of the eye are corrected, all tonsils are removed, all cavities in teeth are filled, and all other remedial defects are remedied, some examiners will find still over 90 per cent. of deviations from an arbi-

trary normal, while other examiners will find only the small percentage of organic defects.

Furthermore, it will be true that certain individuals who have some slight organic defect, even such as a slight cardiac lesion, will be not only more useful but more active citizens than those who are apparently entirely free from defects. After all, next to life, activity is the essential of the human machine. A so-called defect, particularly if it is not a blemish, is of only academic interest if it is without effect on life, activity, and well-being.

What it is actually important to know is how the individual as a whole can undertake the affairs of life, rather than to befog the issue with an array of defects which, although permanent, may in nowise interfere with his future career of usefulness. This situation has led to various attempts to devise tests of function or of physical efficiency. In the olden days the physical efficiency test was some form of personal combat in which the better man emerged victorious. It soon became evident, however, that there were limitations to such a method of evaluation of human physical efficiency, inasmuch as one man might easily excel in one form of contest, and his opponent might excel in others. It was often evident that superiority was more a matter of training and coaching than of physical efficiency. In the present days I think no one ventures to offer as a test of general physical efficiency any one contest, as example, the distance a man can leap, or how fast he can run, or how well he can box. Of course, various combinations of these contests have been arranged, but they have not been accepted as of very great value. At one time various anthropometric measurements were suggested as the criteria of physical efficiency. These measurements were not particularly valuable, especially when taken alone, because they did not take into consideration the presence of possible organic defects discoverable by the usual physical examination. Out of the physical measurements there developed attempts to evaluate physical efficiency by different kinds of strength tests. These, in turn, have largely been discarded, because they take into consideration only the factor of muscular strength, and, furthermore, it was soon found that a little practice introduced too great a divergence in the readings.

More recently certain specialized physical efficiency tests have been developed, which have given good results, particularly in the hands of their advocates. As a rule, these physical efficiency tests have been applied to the cardiovascular system, and have largely depended upon the variations in blood pressure and pulse rate before and after exercise, etc. There has been a serious complication in these tests because of the absence of any known standard of normality and because the test did not precisely parallel the kind of work for which the individual was being tested. In the case of aviators during the war, it was possible to build up a physical efficiency test which did reproduce to a reasonable degree the conditions under which the aviators had to work, and which proved, on the whole, a very satisfactory test for fitness for aviation.

It must also be remembered that the more closely one reproduces the precise conditions of a given industry, the more nearly is one approaching the employment of performance in the industry as a test. In other words, one can always speak with authority concerning the safety of ice for skating if someone has tried the ice, particularly if he has fallen in. While there will be unquestionably various tests in the future which may be applied to certain specialized industries, thus far no really satisfactory test has been devised which will evaluate in general terms a given individual's physical efficiency.

The desired test ought to be sufficient to enable us to classify, roughly at least, individuals so that one could select those who are suited for general types of activities. Such a test should supplement and not replace the physical examination, and should enable us to give some answer as to why individuals who are organically sound are apparently unable to undertake certain ordinary forms of work.

I have already tried to show in the discussion of standards of physical examination that certain abnormal findings do not necessarily indicate the presence of organic disease. Frequently these abnormal findings are to be interpreted as disturbances of functions, which are usually of no significance as far as life is concerned, but which may, however, be of some importance as regards perfect well-being and actual physical capability. It has seemed to us that it might be possible to develop out of the data obtained by a complete physical examination certain information which could be interpreted in terms of actual physical efficiency. The addition of certain evidence obtained by history or special methods of examination might, of course, be necessary. Consequently we have in the past few years made certain slight additions to our physical examinations, which, however, have still been kept within the time requirements that are so essential in the examination of large groups.

The functional efficiency of individuals is obviously divided into two portions, the physical and the nervous. I use the term nervous with great reluctance, but find that that term is, on the whole, more expressive than any other term or combination of terms. While in many ways it is desirable to separate the purely physical and the purely nervous functions, it is important to appreciate how closely they are related. I have previously given an illustration, namely the "effort syndrome," in which the symptoms are very largely and sometimes exclusively cardiac, and yet the causative disturbance is in the nervous system.

We assume that an individual has a certain intellect, which is the product of his heredity as modified by environment and training. The ability to use to the utmost this intellect, in case the individual is a mental worker, depends, somewhat, at least, upon the functional capacity of his body, perhaps more definitely upon his nervous stability, which, in turn, is affected considerably by his physical well-being.

As an addition to the physical examination which we employ at Harvard University, we have a simple but, on the whole, rather satisfactory method of classifying the way the individuals use their bodies and their feet. We designate this as the mechanical use of the body, and have arbitrary classifications of A, B, C and D. It is of some interest that according to this classification approximately 20 per cent. of college freshmen have good mechanical use of their body, and about 80 per cent. have bad mechanical use of the body. Of that 80 per cent, 35 per cent. have very bad mechanical use of the body. Individuals with poor posture probably ought not to be classified as having defects, and certainly not as having organic defects. As a matter of fact, these percentages represent merely habits of mechanical usage. These habits are relatively more or less firmly fixed at that age, depending upon the individual. We find that a considerable portion of individuals tend to correct their bad use of the body, particularly with instruction. In other words, ordinary growth, development and usage help correct habits in some instances. On the other hand, another group of individuals will change from fairly good use of the body to poor use of the body in a similar period of time. The relation of poor posture to general well-being is by no means settled. One is often much in doubt as to whether the individual is sick and assumes a bad posture or is sick because he assumes a bad posture. However, there are certain evidences, such as orthostatic albuminuria, which are suggestive of some association between poor mechanical use of the body and a disturbed function of other organs. Poor mechanical use of the body is associated with, even if it does not explain, many disturbances of a minor character. Furthermore, we find that there is a close but not exact parallelism between mechanical use of the body and athletic achievement, and, also, surprising though it may seem, the intelligence tests in one of the Graduate Schools of the University. Let me hasten to correct any misapprehension. I am not advocating this classification of the mechanical use of the body as a functional test of the individual as a whole. I merely want to suggest that such a functional test of one item of bodily function may be one of the several criteria which, taken all together, may give us some picture of the functional capacity of an individual as a whole. I dwell on this single functional classification, first because it has been thoroughly worked out, secondly because it may serve as an illustration of other systems of the body, and thirdly because already in our investigations, as has already been indicated, we find a marked tendency for the association of multiple functional disturbances. One might include, either separately or as a part of the mechanical use of the body, some classification of the sheer muscular strength of the individuals. If any place is to be found for such a classification it will probably be an insignificant one.

As has been already discussed, albuminuria in young men, without other signs of nephritis, is not to be regarded as evidence of organic disease. Albuminuria may well be taken as one of the criteria by which is indicated a disturbed function, the exact nature of which is not understood. One sees in this finding the same tendency for the association of these functional disturbances, or at least disturbances without an organic basis within our present comprehension.

It is possible to take each physiological system in turn and scrutinize the findings already available in any complete physical examination, not only for the presence or absence of organic disease but also for disturbances of a functional nature. For example, the presence of a sytolic murmur, as already indicated, does not mean a damaged heart. On the other hand, in our study of men with systolic murmurs, we did not find conspicuous athletes who had a murmur. We are inclined to interpret the presence of a systolic murmur as indicating a deviation from the best physical condition, but of no organic significance. Here, again, it was notable that in the men that we examined, there was an association between these insignificant systolic murmurs and other findings, such as unstable blood pressure, albuminuria, etc.

In our study of variations of blood pressure, which has not progressed as far as certain other studies, we have been much impressed with the frequency with which a blood pressure over 140 could be demonstrated. In one series in which the blood pressure was taken, both in the standing and in the recumbent position, approximately 20 per cent. of the individuals gave a reading of 140 or over in one of the determinations. Subsequent examinations demonstrated the fact that this reading was only temporary, and I do not think that anyone would maintain that these individuals suffered from any organic pathology of the cardiovascular system. On the other hand, the existence of an unstable blood pressure may be interpreted as we have interpreted other derangements, as indicating a sub-standard, even if not an abnormal state of physical efficiency.

Much has recently been written in regard to under-nutrition and over-nutrition. In the schools much has been made of rather large numbers of so-called under-nourished children, because they did not conform to a somewhat fixed arbitrary standard of weight for their

height and age. It is certainly open to question what standard we should accept in estimating the normal weight. Certainly in school children any standard that does not take into consideration the factors of race and heredity, as well as the age and height, and perhaps the sitting height as opposed to the total height, is open to criticism. That there is a point of some value in the general consideration of weight is shown by various life insurance figures which, although crude, indicate that the nutritional state as shown by the weight, is a factor in determining the expectancy of life. Of particular interest is the apparent relation of over-weight to a shortened expectancy of life. It should be possible to interpret within the limits of each age group the general findings in regard to nutrition very much as the other findings which we have discussed have been interpreted. As in the other physiological systems which we have already discussed, it is hardly possible to separate too precisely one system from another, because all of these systems influence each other.

Perhaps of greatest importance is some classification of the nervous system, because the nervous system is so intimately connected with all bodily processes. Indeed, it seems likely that many of the functional derangements which we have already discussed, are more closely related to the nervous system than they are to the system with which they are apparently connected—for example, unstable blood pressure, the "effort syndrome," are apparently more closely related to the nervous system than they are to the cardio-vascular system. We have made at Harvard University some attempt to survey and scrutinize the nervous system much as we have surveyed and classified the bodily mechanics and the cardio-vascular systems of the individuals whom we examined. So far we have not succeeded in securing data with which we were particularly satisfied. This is peculiarly unfortunate since in the last analysis the general efficiency of the individual is perhaps more closely related to the efficiency of his nervous system than to anything else. Nevertheless, in spite of the difficulties, a beginning has been made. We have of course entirely eliminated the investigation of the intelligence, because that is a field of itself. That field can be reasonably covered with the methods of examination that we now have, even if no method is entirely fair or entirely satisfactory. The written examination, the oral examination, and even the so-called intelligence examinations, are all open to justifiable criticism, but all these examinations are unfortunately more satisfactory than the examination of the actual physical well being of the individual. In our attempt to establish some criterion of the nervous stability or instability of a given individual, we have relied upon two methods of examination. One, the method of questionnaire, which is in effect a condensation and modification of the familiar psychological examination, and the other the further interpretation of the usual findings in the ordinary physical examination. As has been noted above, the unstable blood pressure is probably related to some form of deranged debility of the nervous system. The same is true of sinus arrhythmia of the heart and tachycardia. Hyperactive reflexes, dilated pupils and the cutaneous manifestations of vasomotor disturbance are also data of significance. Tics, speech defects and numerous disturbances noted in a careful history represent additional valuable data. While we have collected a considerable mass of material, we have not the temerity at the present time to set up even a tentative arbitrary standard. Of course in individual cases one can safely designate the extreme instances of stable or unstable function of the nervous system. But to be really valuable a standard must be applied to the rank and file. It is at present our definite impression that a just estimation of the nervous stability of an individual is, in the absence of certain organic pathology, the most important factor in determining the individual's fitness for the essential activities of life. While an equanimity of the spirit is doubtless conducive to longevity, even if it is not as important a factor as long-lived ancestors and probably other factors, it is not certain that nervous instability actually shortens life. On the other hand it is certain from the observations of every one, I believe, that nervous instability of any considerable degree frequently interferes seriously with well-being and not uncommonly with successful achievement in life. At present the individuals with well marked nervous instability, perhaps inherited, are compelled in the absence of satisfactory functional tests to undergo the tests of actual performance. If they fail in this acid-test, one explains the failure by well intentioned phrases as "nervous," "delicate," "timid," "temperamental," or perhaps by uglier terms as "cowardly," "useless." It is certainly one of the greatest opportunities in the application of physical examinations to classify individuals in regard to nervous stability. The detection of early and mild cases of nervous instability would result in the application of suitable remedial measures from which one might confidently expect excellent results. Furthermore it would enable the physical examination to record the limitations of individuals in regard to complete well-being and in regard to the essential activities of life. The physical examination would thereby approach more nearly the results now expected but not now attained.

But the standard which is to be adopted for a functional test for nervous stability, important though it is, is not to be regarded as the test for the individual as a whole. All the data which I have indicated will be taken together and summarized. It will probably be evident that there is a very strong tendency for these

functional derangements to be associated in the same individual; for example, a man given a poor classification, which we arbitrarily designate as D, in bodily mechanics, will also have albuminuria, a tachycardia, an unstable blood pressure, and perhaps sinus arrhythmia, and finally nervous instability of a certain degree. Such an individual may be in the ordinary medical sense, organically sound, and may have his normal expectancy of life, but he has such an accumulation of associated functional derangements that it will seem legitimate to regard him as below par, not at present likely to enjoy robust health or fit for activities requiring unusual strain. On the other hand, one may find individuals who may have only one of these many functional derangements and they may be regarded as below par in only one respect. Such a method of classification and evaluation is of course not now in actual operation. The outline of this plan has been slowly built up and is only now being crystallized into definite shape. But our experience lends some confidence in the possibilities of the plan as outlined.

It has not been my intent to outline any particular plan for physical examination which I want personally to advocate. Rather it is my intent while emphasizing the importance of an adequate physical examination to indicate that the physical examination as now ordinarily carried out and interpreted, does not meet the requirement of the situation for a variety of reasons. An adequate physical examination must fulfill three important purposes: (1) The detection of organic pathology, to be followed by the necessary measures for the correction, compensation or control of the lesions discovered, as far as possible. (2) The detection of non-organic functional disturbances, to be followed by the necessary measures for the correction, compensation, or control of these disturbances, as far as possible. (3) The evaluation and classification of each individual as an entity, to be followed by directions as to suitable future activities and by measures designed to better his classification and thereby improve his well-being and enlarge his potential activities. At the present time it is customary to regard the beneficial effects of certain physical habits of eating, sleeping, exercise, etc., as axiomatic. And there are many individual illustrations of the validity of this custom, for example in the treatment of tuberculosis, psychoneurosis and sundry other chronic ailments, both organic and functional. If, however, it were possible to evaluate these and the many other enthusiastically recommended procedures by demonstrated alterations in the physical examination, at once personal hygiene could be taught not with apologies to one's conscience and to science, but with sincerity and effectiveness.

Original Articles.

EARLY DIAGNOSIS OF THE MORE COMMON UPPER ABDOMINAL CONDITIONS.*

BY JOHN B. DEAVER, M.D., PHILADELPHIA, PA.

Emeritus Professor of Surgery, University of Pennsylvania; Surgeon in Chief, Lankenau Hospital.

In discussing the early diagnosis of upper abdominal conditions I fear I cannot present anything very new, and with the old you are all no doubt more or less familiar. Nevertheless, it is a pleasure for me to be with you this evening and to attempt to interest you in the point of view of the questions I will touch upon. It is generally agreed that most of our recent or new knowledge of diseases of the upper abdomen has been the work of the surgeon who has told us what he has learned about the pathology of intra-abdominal disease by his numerous autopsies *in vivo*. It also is no doubt true that in no other way, except in the post-mortem chamber, but where the tissues are seen and examined, not in their living state, but only in the terminal stage of disease, can the same concept be obtained as by study on the living subject.

For want of time I shall only touch upon the more common upper abdominal conditions, those occurring in daily practice. Changing the title of my remarks from diagnosis of upper abdominal conditions to early diagnosis of the more common diseases of the upper abdominal viscera, will, I think, give you a better idea of what I wish to convey to you. By diseases of the upper abdominal viscera we generally mean disease of the biliary passages, the liver, the duodenum, the stomach, the pancreas and the spleen; if we consider the upper abdomen as including the viscera above the umbilical line we might also include disease of the kidney, the suprarenals, the transverse colon as well as the retroperitoneal glands of this region, but these will not enter into our discussion this evening.

While early diagnosis—finding out what ails the patient while the pathology is in its infancy or in its formative stage—is the ideal for which we are continually striving, we must admit that it is not always possible. But as Moynihan has said: "There are few things that cannot be conquered if a man's heart is set on victory." So let us try to bring out certain points along lines which may help us all in more frequently making an early diagnosis of disease of the upper abdomen.

In this discussion we must not lose sight of the fact that many of the symptoms of disorders in this region may be and at times are caused

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by disease of the viscera below the umbilical line, especially the appendix, and particularly, chronic appendicitis. The appendix, as you all know, is a very versatile diverticulum capable under certain conditions of mimicking the symptoms caused by disease of the gall-bladder, of the stomach, the duodenum, the pancreas.

I need only say that acute or chronic disease of an appendix holding a high position is not always easy to diagnose. The appendix may cause hunger pain, pylorospasm, hematemesis, so that in all abdominal conditions if we will think of the appendix first, last, and always, we will not so often have cause for regret. It is because I operate upon so many cases brought in to the hospital with a diagnosis of "upper abdominal disease" and in which I find the appendix, and the appendix only, to be the cause of the symptoms, that I throw out this warning. In appendicitis the pain is usually referred in the line of the appendix, as for example, when the appendix is directed downward the pain will be referred close to Poupart's ligament; when directed obliquely downward into the pelvis lying and pointing to the left, pain will be referred to the left side of the abdomen low down. When the appendix is directed upward, lying behind or to the outer side of the cecum and ascending colon, the pain will be referred to the right upper abdomen.

Of the more common upper abdominal diseases let us first consider early diagnosis of gall-bladder disease, the most common variety of which is chronic inflammation of this organ. In order correctly to interpret any disease it is essential first of all to elicit a correct history. This is the pivot around which everything else revolves,—the cornerstone of the future diagnostic structure.

All of the various diseases of the gall-bladder, whether calculous or non-calculous, present certain premonitory and actual symptoms. The premonitory symptoms are those of indigestion, in the shape of slight discomfort after eating, particularly after partaking of rich food; a disposition to the formation of gas in the stomach; at times a chilly sensation after the evening meal, and consequent general discomfort attributed to a sluggish liver; and, as a rule, constipation. When these symptoms occur in a person who is nervous, the diagnosis too often is the convenient one of nervous dyspepsia, for which the patient is treated with nerve sedatives, with the result that the condition is aggravated rather than improved. When you have patients complaining in this way let me urge you to make your first consideration the biliary passages. In practically every case of disease of the biliary passages, if you are careful to go back far enough in the history you will be able to satisfy yourself of the correctness of this picture.

When gall-bladder disease, especially in the presence of gallstones, is fully developed the diagnosis usually is not difficult. The severity of the actual symptoms, especially the sharp colicky pain, depends upon the presence of stone. The subjective symptoms are pain in the mid-epigastrium due to pylorospasm, distress immediately or soon after eating, followed by nausea and, in some cases, vomiting. Often the patient will induce vomiting to obtain relief; washing out the stomach will often also give relief. The distress after eating is due to the pylorospasm and to the distention of the stomach from gas. Later in the course of the disease the distress or pain will probably be referred not only to the mid-epigastrium but also to the back and the right shoulder. Jaundice, as a rule, is not present early, but appears when the inflammation has reached the liver by way of the communicating lymphatics between the liver and the gall-bladder, involving the smaller radicles of the hepatic duct and the hepatic cells. Cholangitis may also result from infection reaching the liver through the cystic and the hepatic duct; in other words, jaundice in gall-bladder disease, in the absence of obstruction of the common duct, is due to cholangitis.

No less important than the subjective symptoms is the information to be derived from physical examination, inspection, palpation and percussion; the most important of which is palpation. To my way of thinking, the history, together with sight and touch, are the essentials for diagnosis of abdominal disease. Gastric analyses, duodenal aspirations and the x-ray, I regard simply as confirmatory evidence, side-issues, useful very often and especially for impressing the patient. I see so many duodenal bucket and stomach analyses, and x-ray diagnoses of gallstone disease that do not work out when the living autopsy is made that I feel warranted to speak as I have.

In some quarters, I am glad to say in limited ones, as you probably know, the diagnosis of gall-bladder pathology is being attempted by the passage of the duodenal bucket and the introduction through the bucket of medicines that irritate the duodenal mucosa. I am glad to congratulate these ambitious research workers for their patience and their energy.

As I view it, anything introduced into the duodenum that irritates the duodenal mucosa, even the duodenal bucket alone, will excite reflex action, when the muscle of Oddi may respond. How do we in any other way explain the presence of free bile in the stools in loose bowel movements caused by calomel and saline purgation? Well do I recall the teachings of the late Prof. Alfred Stillé and of the late Prof. H. C. Wood upon the action of these and similar drugs in causing bilious evacuations. Prof. Stillé thought this due to reflex irritation, and Prof. Wood, in the case of calomel, to direct action upon the hepatic cells. The ability to feel is a great gift; many a doctor practices medi-

cine a lifetime and never acquires the sense of delicate touch. Sight will detect asymmetry, and the presence of a swelling. The effect of the excursions of the diaphragm, when there is a tender swelling in the abdomen in close relation to the diaphragm, can be detected by the way the patient breathes. It is my practice to ask patients to breathe lightly or deeply to see what influence the movements of the diaphragm may have in eliciting soreness; also, to have the patient cough more or less lightly. Palpation, if properly made directly over the diseased area, will detect rigidity and tenderness, as well as the presence of a mass; and if the mass is high enough up and not adherent to the overlying peritoneum and not fixed in the deeper tissues, it can be felt to move by asking the patient to breathe deeply. If the mass moves upon deep inspiration it can be better made out by having the patient hold his breath for a few seconds. These are the maneuvers that serve me well. I feel that while our present-day methods of using mechanical appliances may have their field, they cannot supplant those I have expressed myself in favor of. High acidity or low acidity, A.B.C. bile and x-ray shadows interpreted as gall-bladder pathology, I do not think of great moment. I do not expect all of you to agree with me in what I have just said, nevertheless it is in keeping with my observations and experience. Where there is a swelling, where there is bona fide rigidity and tenderness, in many instances to the extent of being exquisite, there is pathology. I care not what other examinations show. The late John B. Murphy so forcibly expressed the importance of properly directed pressure over and into the gall-bladder region that I need only refer to it. I regard properly applied palpation the most important of all the physical means of examination in suspected disease of the gall-bladder. I do not hesitate to say that with a correctly interpreted history, plus the physical findings, gall-bladder disease—acute or chronic—except carcinoma, can be usually diagnosed.

Acute cholecystitis, as a rule, is comparatively easy to recognize by palpating the involved area. I may say that it is sometimes perplexing to tell the difference between a terminal inflammation of a high-lying appendix and acute cholecystitis. The diagnosis, if made at all, is by the history and the palpatory findings.

The more aggravated forms of acute cholecystitis, suppurative, phlegmonous and gangrenous, in either of the two latter types of which perforation frequently occurs, cannot in every instance be differentiated from perforated ulcer, acute pancreatitis, high acute intestinal obstruction and mesenteric thrombosis. It goes without saying that the earlier the cases are seen the greater the chances for an early and correct diagnosis. A history of previous cholecystic symptoms is of much importance, but unfortunately this cannot always be obtained. The suppurative type of cholecystitis is not uncommon, but gangrenous cholecystitis is most rare. In a series of 328 operations on the biliary tract gangrene of the gall-bladder was encountered by me only twice. In most instances the severe forms of infection occur in connection with gallstones.

In the more aggravated forms of acute cholecystitis the symptoms are greatly exaggerated with much more pronounced involvement of the peritoneum. The pain and tenderness are more general, at times extending over the entire abdomen. Nausea and vomiting may be persistent and the picture presented is one of diffuse infection of the peritoneum rather than of infection of the gall-bladder. When perforation into the stomach, the duodenum, the colon or the liver, or into a mass of adhesions surrounding the gall-bladder occurs, the acute symptoms suddenly subside. But when perforation takes place into the general peritoneal cavity a rapidly spreading and usually fatal peritonitis results. If a gall-bladder previously palpable suddenly seems to disappear, with the occurrence of a sudden exacerbation of pain and increase of the peritoneal symptoms, perforation should be suspected.

In disease of the common duct, which frequently is due to stone, the diagnosis can be made early by careful interpretation of a carefully taken history, and the presence of tenderness immediately to the right of the mid-epigastrium, elicited with the finger tips. Excruciating pain, followed by chill, temperature, sweats and jaundice, with tenderness at the point referred to above, makes the diagnosis almost certain. Following these symptoms and signs there usually occurs temporary amelioration of the symptoms, when the pain vanishes, chills and sweats disappear and the jaundice subsides, but recurrence of pain, chill, sweat and jaundice occurs more or less often. Bear in mind that in practically all cases of stone or stones in the common duct they have traveled from the gall-bladder; in other words, have been preceded by gall-bladder lithiasis; and if tenderness both over the gall-bladder and the common duct can be made out, it will indicate a combination of gall-bladder and common duct disease. We must not lose sight of the occasional silent duct stone in which pain is not a factor or is so trifling as to be misleading. I will merely mention the other diseases of the common duct, choledochitis, carcinoma, and cystic dilatation.

To be skilled in the refinement of diagnosis is an accomplishment which we would all like to possess. But to have the sense to recognize the requirement for surgical intervention rather than the differentiation between the pathology of borderline conditions is of more practical value, especially to the patient. The conditions which are to be differentiated from subacute perforation are a high-lying appendix, chronic or subacute cholecystitis and subacute pancre-

atitis. Time will not permit a detailed discussion of this aspect of our subject.

The early diagnosis of chronic pancreatitis may be very elusive. Only by the exclusion of the more common upper abdominal conditions can it be made. Touch and sight are the only means of being sure.

I shall have little to say with regard to early diagnosis of acute affections of the upper abdomen. A common danger of all acute upper abdominal inflammations and emergencies is peritonitis. In order to make diagnosis certain the cases must be seen early before the advent of peritonitis, certainly before the peritonitis has spread to any great extent. Peritonitis is like the cloud over the horizen; where the cloud is very dark and widespread the horizon cannot be recognized.

In the early diagnosis of surgical diseases of the stomach, the most common of which are ulcer and carcinoma, the deformity caused by ulcer, and hourglass contraction in particular, as seen in the radiogram in the hands of the expert, can often solve the question. The expert radiologist is often able in cases of gastric ulcer to make a diagnosis. However, the only absolutely sure way of diagnosing gastric ulcer is by sight and touch.

X-ray in the diagnosis of gastric ulcer should be almost as reliable as in the diagnosis of stone in the kidney; and I may say if the ulcer is demonstrated in the roentgenogram and is not found at operation, it is probably the fault of the operator and not due to absence of pathology in the stomach. On the other hand, however, the absence of demonstrable ulcer in the roentgenogram is by no means to be taken as a certain indication that it is not there. I speak from experience. The clinical diagnosis is not by any means sure. The chief clinical symptoms are pain, vomiting and haematemesis.

Of these three chief symptoms the most important is pain. Its characteristic is its punctuality, appearing at the same time of day after the same meal. When the meals vary in the kind and amount of food taken, the pain may appear later or earlier than usual; but, as Moynihan puts it, "A time-table for one day then fits any other day." The rhythm of gastric ulcer is food, comfort, pain, comfort, differing from the rhythm of pain in duodenal ulcer, which is food, comfort, pain.

Seasonal variations are less marked in gastric than in duodenal ulcer.

In the diagnosis of gastric ulcer, we might say what has been said by a distinguished Irish surgeon: "We feel as if we were in no-man's land—making attempts and counter-attempts to gain the goal."

The difficulty in the diagnosis of gastric ulcer arises from the fact that many intra-abdominal lesions may cause spasm of the pylorus with first a hypertonic and, later, an atonic stomach, epigastric pain, with or without hyperchlorhydria, and in many instances vomiting.

Most of the cases diagnosed as gastric ulcer are not gastric ulcer at all, but chronic appendicitis giving upper abdominal symptoms, or oftentimes chronic cholecystitis.

Hemorrhage in large quantity may occur when the lesion is a considerable one, and may be due either to chronic or acute ulcer. The most common pathological lesion of the stomach causing severe hemorrhage is multiple erosions where the stomach, so to speak, weeps blood. Large hemorrhage the result of ulcer is more likely to be due to erosion of a vessel of a chronic ulcer. In considering the question of haematemesis one must not lose sight of the fact that occasionally it is caused by a toxemia of appendicitis or of cholecystitis or from serious infections elsewhere, also from cirrhosis of the liver, splenic anemia, etc. While hæmatemesis may be a symptom of duodenal ulcer, the bleeding is more likely to be into the bowel and to appear as melena.

The diagnosis of gastric ulcer is often too hastily made. The clinical history, and often the x-ray may be trustworthy methods of arriving at a diagnosis, but the only way to be absolutely sure is by incision, inspection and palpation; as I have so often said, the surgeon walks by sight and not by faith. I am constantly seeing cases diagnosed as gastric ulcer which operation fails to confirm. Therefore, before committing ourselves, it certainly behooves us to "stop, look and listen." Unless gastric ulcer is shown by the x-ray or is seen by the eye we cannot be fully confident that it is present.

Moynihan believes that in the diagnosis of gastric ulcer the x-ray has pride of place; and that in competent hands it is far more accurate than any other method of diagnosis, clinical or chemical, or than all other methods combined; and that there are only two certain and unequivocal methods of making a diagnosis of gastric ulcer—that of the radiologist and that of the surgeon.

Duodenal ulcer is more common than gastric ulcer. But the surgeon rarely gets a chance to make an early diagnosis of duodenal ulcer because he rarely sees the patient early enough. As a rule the cases come to the surgeon after seven or more years of digestive disturbance, that is, after many medical cures(?). The early symptoms, however, do not materially differ from the symptoms at the time we see the patient.

There are two types of duodenal ulcer—the typical and the atypical. The typical ulcer presents the characteristic symptoms,—pain two or three hours after eating, but recurring and continuing, not as a sharp or severe pain but as a more or less epigastric distress until the patient eats again. After eating and before the onset of the pain the patient has a feeling of

distress sometimes spoken of as a bursting feeling. Nausea or vomiting is rare, as is also vomiting of blood. Careful examination of the stools will often show occult blood and occasionally macroscopic blood. The most important point in the history is the long duration of the symptoms and the periodicity of the attacks. The time at which the pain comes on after eating depends upon the quality and the character of the meal taken, that is, the pain appears earlier after a light than after a heavy meal. Stomach analysis shows hyperacidity much oftener in duodenal than in gastric ulcer; about 72 per cent. in duodenal ulcer and 20 per cent. in gastric ulcer. There is rarely a history of loss of weight.

Atypical ulcer is almost impossible to diagnose in the absence of positive x-ray findings. It is just as likely to be taken for chronic interstitial cholecystitis, or a high-lying chronic appendicitis, as for ulcer. About the best we can hope for in these conditions is to diagnose a lesion which is not remediable by means other than surgical. Occasionally a case of duodenal ulcer will present jaundice, but this should not make the diagnosis impossible if the history has been carefully taken. I have seen the association of ulcer and common duct stone giving rise to jaundice. The diagnosis of both conditions was made and proven by operation.

An accident which occurs in about 22 per cent. (some say 40 per cent.) of cases of ulcer is perforation, the early diagnosis of which should be made possible by the history of sudden, acute abdominal pain coming on like lightning out of a clear sky, immediately followed by board-like rigidity of the abdominal walls. This rigidity of the abdominal walls is so characteristic as to be practically pathognomonic; the patient holds a fixed position being afraid to move. Anyone who has seen it once will ever after recognize it.

Again, I regard a careful physical examination of much moment in differentiating between gastric and duodenal ulcer, the point of tenderness often being a guide. When the lesion is on the epigastric side of the pylorus the tenderness is usually to the left of the epigastrium; while in duodenal ulcer tenderness occurs usually over the mid- and upper portion of the right rectus muscle. This can be elicited by comparatively deep pressure with the finger tips. In the presence of a pronounced duodenal cap, which is usually there, the radiologist should be able to detect it, but unless he is expert he may fail to demonstrate it. The conditions which often simulate duodenal ulcer are chronic appendicitis and chronic interstitial cholecystitis.

In the early diagnosis of upper abdominal conditions we must always be mindful of subacute perforated ulcer. Considering how often acute perforation occurs it is only logical to believe that slow perforation must occasionally take place. While in subacute slow perforation the history, if obtainable, is the most reliable guide to a correct diagnosis, it is not always possible to arrive at any decision except that of the presence of an upper abdominal lesion requiring mechanical interference for relief.

The patient who has for some time suffered from indigestion with or without a history at all suggestive of ulcer, who has not been permanently benefited by medical treatment, should be subjected to operation. Operation cannot be made too early; and this is one of the principal reasons for not advocating medical treatment for ulcer. This advice may strike some of my listeners as being too radical, yet if a lesion is present surgical treatment will in the end be conservative, and a cure will be accomplished in a very large percentage of cases. To show that medical treatment is dangerous I will quote from Moynihan.

"In the Leeds Infirmary during the years 1910 to 1921 inclusive, following medical treatment there were 75 deaths from gastric ulcer due to hemorrhage or perforation and peritonitis. There were 61 deaths from perforation; 60 of chronic ulcer and one of acute.

"There were 14 deaths from hemorrhage; in 13 the ulcer was of the chronic type.

"During the same period there were 129 cases in which death was directly traceable to hemorrhage from duodenal ulcer or perforation. There were 12 deaths from hemorrhage; in all the ulcer was of the chronic variety.

"There were 117 deaths from perforation. In 12 of these there was acute ulcer, and in 4 of the 12 chronic ulcer also was present; and in each case it was the chronic ulcer that perforated, the acute being incidental. In the remaining 105 cases the ulcer was of the chronic type." Moynihan remarks that "the full mortality of surgery is known, but all is not yet disclosed of the death rate of patients 'cured' of their attacks who die months or, it may be, years later, in the acute emergencies from which there is no time to rescue them."

The men who strongly advocate medical treatment have not been able to give their statistics as obtained by a follow-up system, hence their premises are not only unsound but illogical and false.

The early diagnosis of carcinoma of the stomach is not always possible clinically. The findings of the expert radiologist, who has had a large experience in examining gastric cases, are perhaps of much more moment than are the clinical and chemical findings.

Carcinoma of the stomach is a disease of frequent occurrence; in fact from 25 to 40 per cent. of all cases of carcinoma of the body are primary in the stomach. Statistics show that over 13 per cent. of deaths due to disease of the digestive organs are caused by carcinoma of the stomach. In studying this condition it is especially the predisposing causes of its exist-

ence that must be considered, since little is known of the exciting causes other than ulcer. But we know that surgery is dealing effectively with some of these predisposing causes.

For some time attention has been directed to gastric ulcer as a predisposing cause of carcinoma, best interpreted as chronic gastric dyspepsia, indigestion, etc. The autopsy *in vivo* has shown that most digestive disturbances are due to extra-gastric causes, with the significant exception of the cases suffering from duodenal or gastric ulcer or their sequelae.

The early diagnosis of carcinoma depends upon which of the two forms we see. In the second form, in which the patient past middle life does not give the history of ever having suffered from indigestion, and suddenly loses appetite, grows progressively weaker and is losing flesh; who complains of epigastric pain, without, but more likely with, vomiting, and possibly presents a palpable mass, there is usually not much doubt as to what is the matter. The upper abdomen presents a scooped-out appearance, while the very prominent lower chest margins are also more or less characteristic. In this type of case nothing other than surgery offers anything, and this as a rule only prolongation of life.

The surgeon, in the study of living pathology, is given the opportunity of observing a given disease in its various stages. Before the days of Pasteur and Lister the practice of surgery had been based upon the knowledge obtained from the study of clinical symptoms and of the terminal stage of disease as seen in the post-mortem room. The latter, as we know, led to incorrect deductions due to false impressions resulting from the changes produced by death. These inaccuracies we are able to replace with the more accurate observations on the living subject in the operating amphitheatre. For example, it certainly is of more value to see the precise conditions which cause disease at the time of the illness than to observe the same trouble some time later, when perhaps other changes during life and after death have been added to the pathological picture. In order to heal the living we need the knowledge derived from living processes. This knowledge, when correlated with clinical symptoms, is necessarily reflected in our greater ability to make a correct diagnosis and consequently in improved methods of treatment; for instead of treating only symptoms, we are now in a position often to focus treatment directly on the basic cause of a disorder. In this way surgery falls in line with preventive work,—the watchword of our times.

AN OBSTETRIC CASE PRESENTING AN UNUSUAL GROUP OF COMPLICATIONS.

BY LOUIS E. PHANEUF, M.D., F.A.C.S., BOSTON.

Associate Professor of Clinical Gynecology, Tufts College Medical School.

MRS. E. M., a quadrigravida, thirty years old, was seen in consultation at St. Elizabeth's Hospital on February 7, 1922. Her family history was irrelevant, while her past history revealed that she had had scarlet fever and a moderate amount of hypertrophy of the thyroid gland between the ages of eighteen and twenty-one; this enlargement disappeared after the birth of the first child. She had been married nine years and had had two children and one miscarriage. The first child was born a year after marriage, the delivery consisting of the medium forceps extraction of an eight-pound female child after twenty-four hours of labor; the perineum was lacerated in the second degree and was repaired after labor, the parts did not heal satisfactorily, however. The second labor occurred twenty-two months after the first and lasted seventeen hours; the patient was delivered of a ten-pound female child by medium forceps, and her perineum, which had been lacerated in the second degree, was again repaired, but the result was unsatisfactory.

Following the second labor a first degree prolapse became apparent, the cervix showing at the vaginal outlet; pessaries were tried for this condition, but gave no relief.

One year after the birth of the second child the patient had an attack of appendicitis which quieted down under treatment, but left her subject to frequent attacks of nausea and suffering from constipation. Two years after the second delivery she was operated on for prolapse, an abdominal suspension was performed, and the appendix was removed at the same time; no vaginal operating was done. While this operation cured the patient of her prolapse, it did not relieve her constipation.

In September, 1920, a miscarriage in the second month of pregnancy occurred, at 1 A.M. the gravida had contractions and excessive flowing; when she was curetted at 6 A.M., her cervix was found difficult to dilate, and at the end of operation she was exsanguinated, her pulse was rapid and thready, and she showed signs of air hunger. She was in bed a week and had not recovered from the effects of the hemorrhage when she became pregnant for the fourth time in May, 1921.

The early part of this pregnancy was uneventful; the urine, which was frequently examined, was negative, there was no edema, and the expectant mother felt physically well, although she was weak and tired easily. In December, 1921, she had an attack of frontal sinusitis, followed by tracheitis, her ankles became swollen but the urine remained negative. On December

25, the patient was kept in bed because of extreme weakness, a constant cough and edema of the lower extremities. In January, 1922, albumin and casts appeared in the urine; a few days later the urinary output became diminished, the total quantity excreted being but 500 cc. in twenty-four hours; the edema became more pronounced and marked tenderness appeared at the left groin.

The patient was admitted to St. Elizabeth's Hospital on January 20, 1922, her confinement having been figured for February 1, 1922. On January 31, she had irregular contractions lasting for twenty-four hours.

The writer first saw the gravida on February 7, 1922, at 2.30 P.M. Examination of the abdomen showed the uterus to be fixed to the anterior abdominal wall, there was extreme thinning of the posterior uterine wall and the pregnancy was almost entirely carried in this region; a large child presented by the left shoulder in right position. With the abnormal enlargement of the uterus the cervix had been pulled up to the promontory of the sacrum and the child's abdomen was resting against it; the hemoglobin was 30 per cent., while the red blood count was 1,225,000. There was thrombosis of the left saphenous and iliac veins with marked edema of the left lower extremity and of the abdominal wall; the abdominal veins were very much distended and stood out on the abdomen as they do in cirrhosis of the liver. The gravida had a naso-pharyngitis, tracheitis and bronchitis; the cough, which was incessant, annoyed her greatly; there was a diminished urinary output and the urine showed albumin, casts and blood; mentally she was much depressed and had made up her mind that she could not live.

The distortion of the uterus made a pelvic delivery impossible, even an embryotomy could not have been performed, since the cervix was pulled up so high that it could not be reached from below, as was ascertained by rectal examination. The patient's severe anemia made abdominal delivery a dangerous procedure, while her upper respiratory tract infection contraindicated the use of a general anesthetic. To overcome these difficulties it was decided to transfuse the patient, and to do a cervical Cesarean section under spinal anesthesia. Furthermore, it was thought that this method would be less likely to dislodge a clot from the already thrombosed veins than would a forceful delivery through the pelvis, even if this were feasible. The extreme thinning of the posterior wall might well have been the cause of a rupture of the uterus had strong contractions set in.

Diagnosis. Left shoulder presentation in right position. Fixation of the uterus. Marked thinning of the posterior uterine wall. Cervix pulled up to the promontory of the sacrum. Secondary anemia (Hbg. 30%). Naso-pharyngitis. Tracheitis. Bronchitis. Thrombosis of left saphenous and iliac veins. Edema of left leg and of abdominal wall. Toxemia of pregnancy.

FIG. 5.—The child's abdomen presented over the cervix, which had been pulled up to the promontory of the sacrum. The left shoulder, in right position, presented over the inlet but rested against the anterior uterine wall away from the cervix. Adapted from A. Ribemont-Dessaignes—G. Lepage.

Operation. Transfusion (400 cc. of whole blood) by Dr. Joseph Stanton. Spinal anesthesia by Dr. George F. Keenan. Kronig cervical Cesarean section by Dr. Louis E. Phaneuf.

At 6 P.M., February 7, 1922, the patient was transfused by Dr. Stanton, 400 cc. of whole blood being given. She showed marked improvement after this. At 8.45 P.M., spinal anesthesia was administered by Dr. Keenan; at 9 o'clock the gravida had lost sensation in the lower abdomen and the lower extremities, so the operation was begun.

Median abdominal incision extending from the symphysis to within two inches of the umbilicus; on opening the peritoneum it was found that the lower uterine segment was completely walled off from the general peritoneal cavity by adhesions which had followed the previous coeliotomy. The visceral peritoneum was incised above the bladder attachment to the uterus and reflected downwards with the bladder; an incision was made in the cervix and a male child weighing nine pounds and fourteen ounces was extracted by the breech. The baby's scrotum showed signs of early maceration and the child required considerable tubbing before taking the initial gasp. The placenta which was implanted low on the left uterine wall was easily removed, together with the membranes. The uterus was injected with pituitary extract, 1 cc. on each side of the incision, the organ contracted well and there was practically no bleeding; a temporary pack was placed in the uterine cavity to further lessen the amount of bleeding. The cervical incision was closed in one layer with No. 2 chromic catgut interrupted sutures; the bladder was sutured to its original position on

the uterus with a continuous suture of the same material; this completely covered over the incision in the lower uterine segment; the abdomen was closed in one layer with through and through silkworm gut sutures. The time consumed in operating was twenty-one minutes, the patient felt no pain, and left the table with a hemoglobin ranging from 55 per cent. to 60 per cent.

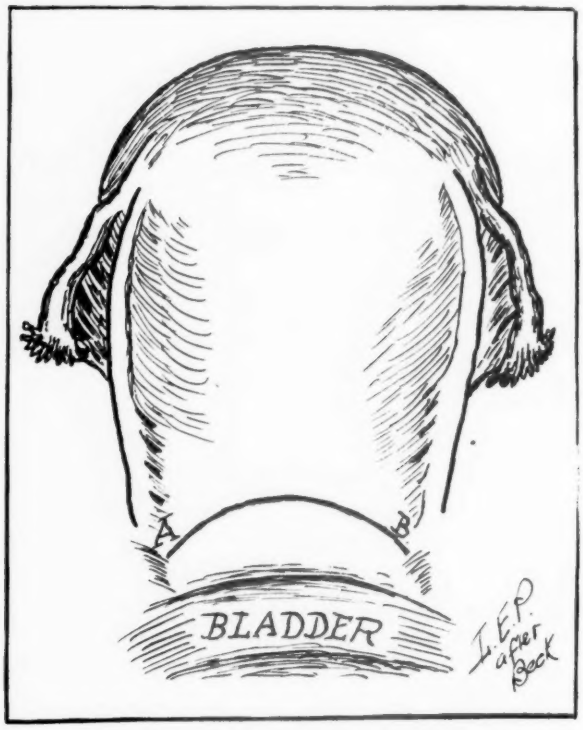

FIG. 1.—The peritoneum is incised above the bladder reflection. (Adapted from Beck.)

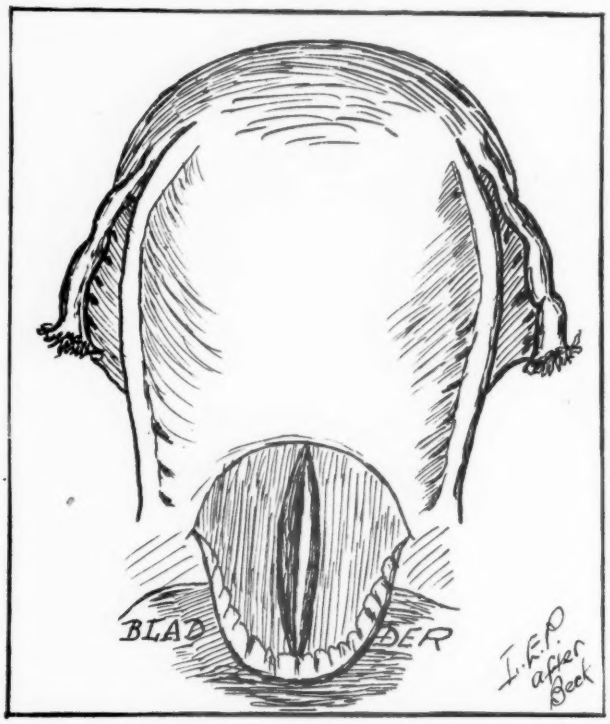

FIG. 2.—Incision of uterus within the denuded area. (Adapted from Beck.)

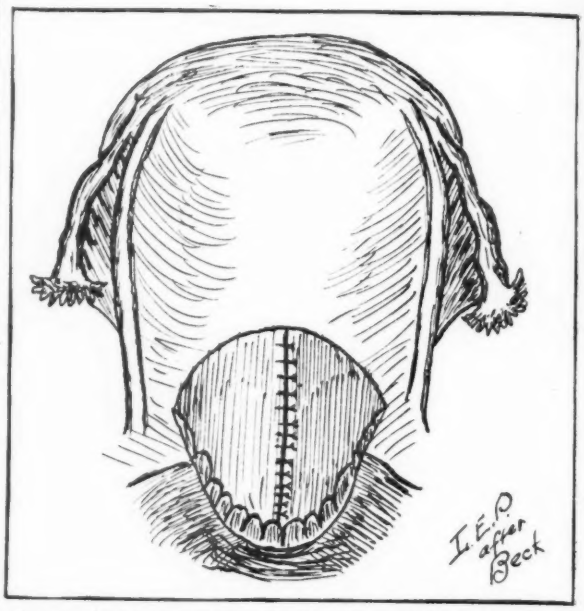

FIG. 3.—Incision of uterus closed with interrupted chromic catgut sutures. (Adapted from Beck.)

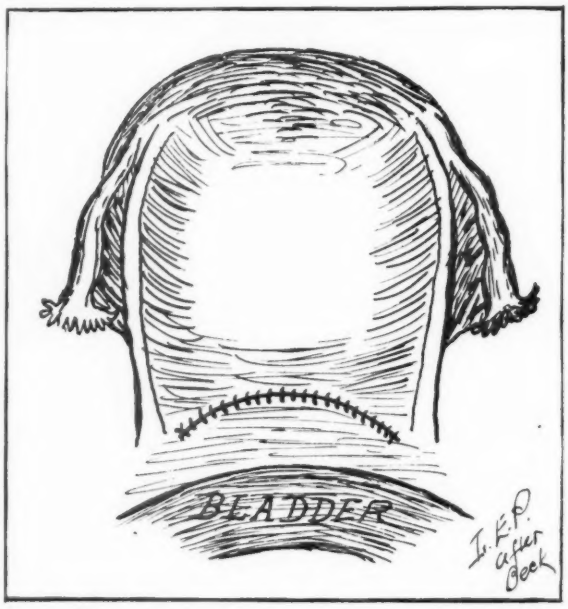

FIG. 4.—Uterine incision entirely covered with peritoneum. (Adapted from Beck.)

CONVALESCENCE.

On the sixth day, in the puerperium, the right leg became painful and edematous, while the swelling in the left leg decreased from day to day, although the patient still complained of pain at the inner aspect of the thigh and calf.

On the eleventh day the puerpera had a small pulmonary embolus accompanied by pain in the region of the seventh rib posteriorly, and by a rise of temperature. On the twelfth day she had a second pulmonary embolus; this was fol-

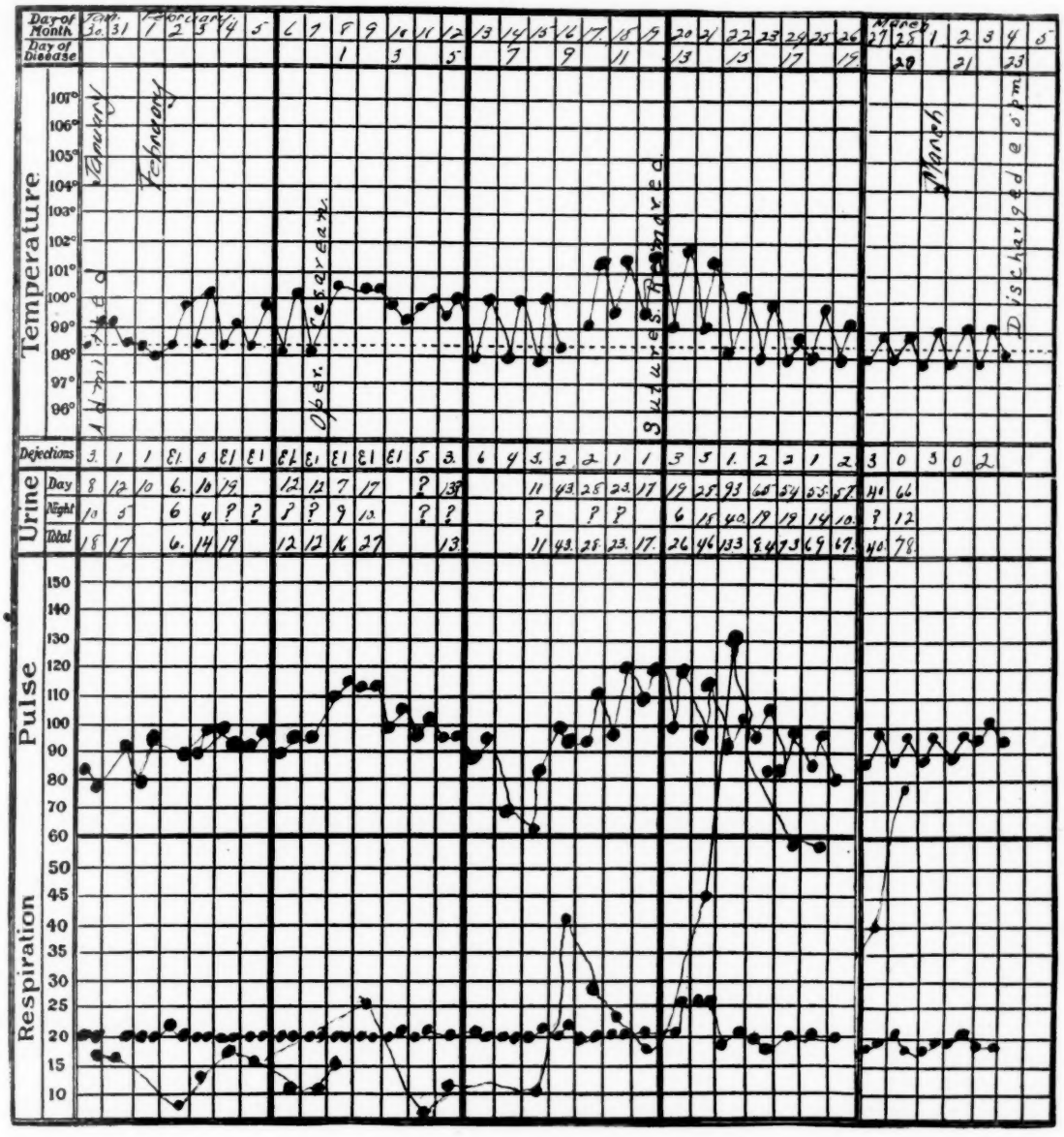

FIG 6.

lowed by pain, dyspnea, mental anguish and expectoration of blood, the last condition lasting three days. The physical findings at this time were a pleural friction rub, and dullness and bronchial breathing in an area the size of the hand in the right lower lobe; these signs disappeared in a week's time. The pulmonary complication was treated by Dr. J. J. Whoriskey.

The stitches were removed on February 19, and the incision was found to have healed by first intention.

On March 2, the edema had completely disappeared, the temperature and pulse had dropped and the puerpera was comfortable. On March 4, she was taken home in an ambulance, while on March 8, she was out of bed and improving. The baby had been put on a formula at birth; when he left the hospital he weighed over ten pounds, and he has continued to do well.

June 7, 1922, the patient reported at the office; her hemoglobin was then 80 per cent. and her red blood count 4,000,000; she had no subjective symptoms except for an occasional attack of pain in the right chest. Dr. Whoriskey still had her under treatment for this condition.

November 1, 1922, the patient is now free from pain; she weighs 145 pounds, her normal weight being 135 pounds; she feels well and strong, and reports that her baby is doing well.

CONCLUSIONS.

This case shows the importance of selecting a type of suspension which when performed during the child-bearing age will not cause dystocia. The round ligaments should be utilized to support the uterus, while the fundus of the uterus should always be left free, and not an-

chored, in any way, to the anterior abdominal wall. The writer believes that uterine prolapse before the menopause should be treated by proper vaginal plastics, to give the necessary support, and by suspending the uterus, by the round ligaments, merely to hold it in proper position. Dystocia is very apt to result if one attaches the uterus high enough on the abdominal wall to take up the slack in the anterior and posterior vaginal walls in an attempt to overcome the associated cystocele and rectocele. This patient had been delivered twice through her pelvis and following the suspension, which had become a fixation, had a miscarriage and so much dystocia with the present pregnancy that a Cesarean section was made imperative.

Spinal anesthesia is well adapted to the cervical Cesarean section; it makes the operation painless, and offers a safe form of anesthesia when pulmonary or cardiac complications make a general anesthetic unsafe; the low incision comes within an area which is readily anesthetized.

Since the convalescence of the Kronig cervical operation is much less stormy than that of the classical section, it offers many advantages to a patient in as poor physical condition as this one was.

A PRELIMINARY STUDY OF THE NATURAL POSITION IN SLEEP AND ITS RELATION TO THE MORE AFFECTED LUNG IN PULMONARY TUBERCULOSIS.

BY DAVID ZACKS, M.D., OLIN S. PETTINGILL, M.D., AND A. H. STANHOPE, M.D., MIDDLETON, MASS.

REST in bed for the tuberculous subject with active disease is a principle, firmly established. It forms the first line of attack of the institutional treatment of the disease. It is our impression that the more thoroughly general, physical and mental rest is enforced, in curable cases, the quicker and more lasting will be the results. With regard to rest, where definite signs of activity are absent, Brown and Heise,[1] in a study on the effect of six weeks' bed rest upon patients entering the Trudeau Sanatorium, conclude:

"While no striking evidence is produced to show the benefit of six weeks' bed rest to cases entering the Trudeau Sanatorium, under the conditions existing, relative to selection of cases and time of beginning treatment, the authors, nevertheless, feel that under more favorable conditions, especially when treatment can be begun immediately upon diagnosis, intensified bed rest will prove of benefit to the patient, although symptoms of definite activity are absent. Surely a much more impressive idea of the seriousness of the disease and of the necessity of proper care is inculcated, and this should in later days, months, or years show beneficial results in prevention of relapse."

Our own observations lead us to agree heartily with this conclusion.

In 1916, Webb[2] called attention to rest of the individual lung by posture. In a further report, Webb[3] insists that postural rest is an advance in the treatment of pulmonary tuberculosis. He reports good results in 200 cases. He further insists that this principle be given a thorough trial. If his claim be true, then we have here a method less trying to both physician and patient than artificial pneumothorax. Dr. Brown[4] states that "at the best, treatment by artificial pneumothorax is trying to the patient and often a nuisance to the physician. Any method which will render its use unnecessary, save time for the physician, and enable the patient to avoid the many pitfalls that lie along its path should receive careful consideration. 'Postural rest' as advanced by Webb and his confrères is to be highly recommended for these reasons. It is gaining wide acceptance. Just how valuable it is in pulmonary tuberculosis cannot be determined at this time, for its sponsors have never published any detailed study of patients, but rest their case upon general statements. It is hoped that this one criticism of the treatment will be speedily remedied."

Furthermore, the majority of tuberculous subjects who come under our observation show bilateral involvement, though one lung may be more extensively involved than the other. Physical signs alone are no criterion in determining the clinical activity of the disease. In examining ex-sanatorium patients, we not infrequently find fairly extensive involvement of one side or the other in tuberculous subjects who are, nevertheless, fairly active in their pursuits and have for a number of years retained their normal weight and considered themselves well. One such patient showed modified breath sounds and medium-sized râles throughout the left chest and slight involvement in the right who has led, for 15 years, an active life since his discharge from the Rutland State Sanatorium. Another case presented signs of a fairly extensive lesion who has led, for 20 years, a fairly active life after her discharge from the same institution. Both these cases had positive sputum during their stay in that institution. On the other hand, there are patients who have active disease as evidenced by an initial hemoptysis, fever and positive sputum, who present very few, if any, physical signs in one or both apices. How, then, is one to determine which lung is the seat of the active lesion?

It is agreed by all workers in tuberculosis that the apex is usually the primary site of the disease. As to which apex is first involved, there is considerable disagreement, Fowler[5] states that the left apex is preferred because man is a right-handed individual and movement is greater on the right side, and because

the left apex is weaker. Welsh,[6] on the other hand, estimates that 86 per cent. show a right apex to 14 per cent. left. Lebert[7] attributes the great proclivity of the apex to the disease to the effect of posture. He does not explain the influence of the erect position, but is probably correct in attributing to the supine posture, an influence in promoting the extension of the lesion to the posterior aspect of the lungs.

This study covers a period of observation of three months. The observations were made by the night nurses in charge of the wards; oftentimes more than one observation being made in one night. An analysis is made in 143 cases of adult type to determine:

1. The preferred position of rest in sleep.
2. The relation of this position to the lung showing the most involvement.
3. The possible preference of one apex over the other as the primary site of the lesion.

Three tables are presented: 1, showing the natural sleeping position in 143 cases; 2, the relation of this position to the side showing the most involvement; 3, the relative frequency of left and right-sided lesions.

TABLE 1.

The natural sleeping position in 143 cases:

Either side	68	or	47.55%
Right side exclusively	11	"	7.69%
Back "	10	"	6.99%
Left side "	4	"	2.79%
Right side preferred	30	"	20.97%
Back "	10	"	6.99%
Left side "	10	"	6.99%
	143		100%

As it was observed that those cases who exclusively kept one position throughout the observations usually had a definite reason for doing so (for instance. those who slept on the back were, in the majority of instances, very ill and too feeble to change positions), it is justifiable to group the results under four headings as follows:

Either side	68	or	47.55%
Preferred right	41	"	28.67%
Preferred back	20	"	13.98%
Preferred left	14	"	9.78%
	143		100%

TABLE 2.

The relation of the sleeping position to the side showing the most involvement. For this comparison, these cases have been classified according to Turban, the extent of the lung involvement being expressed as follows:

I. Lesion extending at most to the volume of one lobe or two half lobes.

II. Slight lesion extending further than "I.," but at most to the volume of two lobes; or severe lesion extending at most to the volume of one lobe.

III. All lesions which, in the extent of the parts affected, exceed "II."

R. refers to right lung.
L. refers to left lung.

36 patients had	R. I.	L. I.
16 slept on either side		
11 prefered the right		
6 preferred the back		
3 preferred the left		
27 patients had	R. I.	L. II.
10 slept on either side		
9 preferred the right		
5 preferred the back		
3 preferred the left		
7 patients had	R. I.	L. III.
5 slept on either side		
2 preferred the right		
25 patients had	R. II.	L. I.
12 slept on either side		
9 preferred the right		
2 preferred the back		
2 preferred the left		
15 patients had	R. II.	L. II.
9 slept on either side		
2 preferred the right		
2 preferred the back		
2 preferred the left		
3 patients had	R. III.	L. III.
1 slept on either side		
1 preferred the back		
1 preferred the left		
7 patients had	R. III	L. I.
3 slept on either side		
1 preferred the right		
2 preferred the back		
1 preferred the left		
5 patients had	R. II.	L. III.
1 slept on either side		
2 preferred the back		
2 preferred the left		
5 patients had	R. III.	L. II.
2 slept on either side		
2 preferred the right		
1 preferred the back		
3 patients had	R. II.	L. O.
1 slept on either side		
2 preferred the right		
2 patients had	R. O.	L. I.
2 slept on either side		
1 patient had	R. I.	L. O.
1 slept on either side		
1 patient had R. O.	L. O. (glandular case)	
1 preferred the right		

6 patients not included in the tabulations above on account of incomplete data.

TABLE 3.

The relative frequency of right and left sided lesions in 82 cases, excluding R. I. L. I., R. II. L. II., and R. III L. III.:

R. I.	L.O.	1	L. I.	R.O.	2
R. II.	L.O.	3	L. II.	R.O.	0
R. II.	L.I.	25	L. II.	R.I.	27
R. III.	L.I.	7	L. III.	R.I.	7
R. III.	L.II.	5	L. III.	R.II.	5
		41			41

SUMMARY AND CONCLUSION.

It would appear from this study that the natural posture of rest in sleep will vary inversely with the length of the period of observation. The more prolonged the period of obser-

vation, the greater the tendency of the subjects to appear in the "either side" column.

There does not appear to be any definite relation between the natural posture assumed in sleep and the side affected.

In 82 cases analyzed the left side and right side are equally affected, both as to frequency and extent of lesion.

It is our impression that in artificial pneumothorax, even in the classical one-sided lesions, the collapse must be gradual or the disease will spread to the well or better side more rapidly or will tend to involve either the larynx or intestines.

We strongly believe that general, physical, mental, and emotional rest, preferably bed rest, for a period varying with the individual indication, must be enforced upon the tuberculous subject and the earlier the better if he is to gain the most benefit of the present accepted rational treatment.

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A SIMPLE BLOOD TRANSFUSION.

BY HOWARD M. CLUTE, M.D., BOSTON.

THE value of the citrate method of blood transfusion has been a matter of widespread interest and controversy since its introduction by Lewisohn in 1915. It has been stated that this method is followed by a higher percentage of post-transfusion chills than any other. It has also been said that the addition of sodium citrate to the blood limits or destroys the action of the blood platelets, increases the fragility of the red cells, and inhibits the phagocytic powers of the white cells. These criticisms have been shown to be questionable by the work of Meleney, Stearns, Fortuine and Ferry, by Ravdin and Glenn, and by Lewisohn, in which it was found that there was no greater percentage of chills after a citrate transfusion than after any other method. Furthermore, the recent work of Mellon, Hastings and Casey seems to indicate that sodium citrate has no deleterious effect on the normal functions of the blood.

We do not feel that the citrate method of transfusion should of necessity replace all other methods. We believe the paraffin tube method is also a very satisfactory method, but that in all cases needing transfusion the most important consideration is that the patient shall receive the blood that is needed as quickly and as surely as possible. As the result of our war experience and the employment of this method in Dr. Lahey's clinic for the past four years we are convinced that in the hands of the majority of doctors the citrate method is the one which will fulfill this primary requisite of a transfusion most frequently—the delivery of blood to the patient. Furthermore, it has been our experience from the observation of a considerable number of citrate transfusions that the results are in no way inferior clinically to those following other methods.

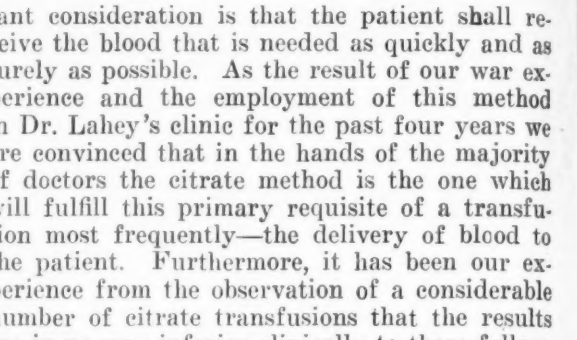

FIG. 1.—Apparatus needed in citrate transfusion. (IV) is enameled receptacle into which the blood flows from the donor. It is mixed with the citrate solution in this container by gentle stirring with the glass rod (I). The glass graduate (III) is used to measure the necessary amount of citrate. (V) is the special Erlenmeyer flask from which the blood is given to the patient by attaching a blunt needle to the rubber tube in the stopper. The rate of flow from the flask (V) is increased by pressure with the pump (II) attached to the lower opening of the flask.

The simplicity of the technic of the citrate method is remarkable, and we shall detail the method as employed by us to prove this fact. We have never failed to get the blood from the donor or to deliver it to the patient with this method. We have lost whole tubes of blood, due to clotting, when using the direct method, and have seen similar accidents, more than once, in other hands. No elaborate apparatus is required. We have performed transfusions in hospitals outside of Boston with the apparatus

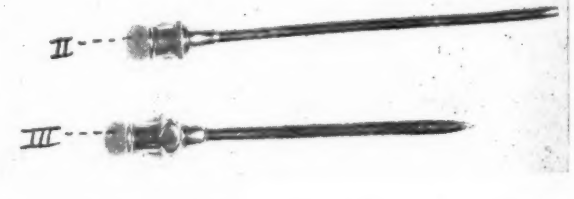

FIG. 2.—Needles I and III are sharp and are used for drawing blood from donor's veins. Needle II is a blunt needle for entering the recipient's veins.

ordinarily used for an intravenous saline transfusion. Trained assistants are not necessary and no large amount of sterile goods is necessary. In fact, one can boil two towels with the instruments and proceed with no difficulty. No special surgical training is required. Anyone who possesses sufficient skill to open a vein under local anesthesia can perform a citrate transfusion.

For the past four years our technic has been as follows: We group both patient and donor by the macroscopic method with known blood serum. In addition to this grouping we also try the action of the recipient's serum on the donor's blood cells when time permits. Having demonstrated that donor and recipient are in compatible groups we proceed with the transfusion.

We place a blood pressure apparatus on the donor's arm and maintain the pressure at his diastolic level. By opening and clenching his fist he makes the veins become prominent. Into the largest vein, at a point below the junction of some tributary veins we insert a needle. This needle is of No. 13 gauge and must be sharp. We catch the blood in a graduated container in which we have previously placed a sufficient quantity of citrate. We have 10 per cent. of our entire solution made up of 2½ per cent. sodium citrate solution, thus we use 50 c.c. of citrate for 500 c.c. of blood. During the flow of the blood we gently stir the contents of the container in order to thoroughly mix blood and citrate.

Having obtained the desired amount of blood we pour the entire mixture into a special Erlenmeyer flask designed by Dr. Lahey for this purpose. This flask has an outlet at its base which is closed with a rubber nipple. As the blood is poured into the flask it is strained through three or four thicknesses of sterile gauze placed over the top of the flask. The blood is now ready to be given to the patient. A rubber stopper containing a glass tube connected to a blunt needle is inserted in the top of the flask and the flask inverted. This converts the container into a funnel and facilitates the outflow of blood. The blunt needle is now inserted in the recipient's vein and the blood is permitted to flow. The introduction is facilitated by connecting a rubber bulb to the lower opening of the flask and pumping gently. At the conclusion of the transfusion the vein is tied off with catgut and the skin wound closed.

With the exception of the special Erlenmeyer container adapted by Dr. Lahey this method presents no essentially new features. We are led to present it in order that the simplicity and certainty of citrate transfusion may be fully appreciated and possibly a more general application of such a valuable therapeutic measure be made.

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OBSERVATIONS ON THE TRANSFUSION OF BLOOD.*

BY DONALD S. ADAMS, M.D., WORCESTER, MASS.

[From the Surgical Service of Memorial Hospital, Worcester, Mass.]

DURING the past four years the Surgical Service has transfused fifty cases. The indirect method was followed, use being made of the Vincent tube, the latter coated with paraffin, as described by Alton.[1] The use of tubes entails more surgical technic perhaps, yet we feel that fresh blood is better than citrated blood.

We cannot count among our cases any of the unusual and little known types of anemias. They were in general the average type that appears in an active general service, although several of them presented unusual features. Inasmuch as the types of cases that received blood belong in two large groups, I have so divided them.

A. Acute secondary anemia, 25 cases. Under this heading I include shock, pre- and post-operative hemorrhage, hemophilia, and those cases in general where a reëstablishment of constituents of fresh whole blood was an immediate necessity. From 500 to 900 c.c. were given in this type of case. In this series all of the patients were materially benefited.

B. Chronic secondary anemia, 25 cases. This group includes those cases in various stages of secondary anemia and not dependent on blood for their immediate salvation. Blood was given with the hope of either adding a fresh supply of antibodies or to strengthen a patient that he might better withstand his present state or prepare him for further operative procedures.

The following subheads are considered under chronic secondary anemia:

1. Acute sepsis such as septic endometritis with septicemia, osteomyelitis, peritonitis, purpura hemorrhagica and sepsis of soft parts, including gas bacillus infection. There were eight cases in this group and poor results were noted in all but two. The exceptions were a pelvic peritonitis and a severe gas bacillus infection of the thigh. 2. Chronic sepsis as tuberculosis of bone, chronic pyogenic osteomyelitis, stomach and duodenal ulcer with low hemoglobin standards and psiliosis or sprue. Good results were noted in this group of nine cases. An ad-

*Read before the Worcester District Medical Society, April 11, 1923.

vanced case of sprue was the only exception.

3. Secondary anemia resulting from non-infective processes as, first, benign new growths, such as fibroids with prolonged bleeding, necessitating transfusion prior to operative intervention. There were four of these cases and all were benefited. Second, malignancy, such as sarcoma and Hodgkin's disease. The two cases of this type received but temporary results. Thirdly, varices, such as hemorrhoids. We transfused two patients with hemorrhoids who were in poor condition as a result of slight bleeding over a period of years. Results satisfactory.

In this series of 50 cases we noted one mortality that could be directly attributed to transfusion.:

R. C. Female, age 14 years. Medical Service. Admitted May 20, 1922. Died May 29, 1922. Chief complaint: Pain in joints, weakness and palpitation. Past history: The usual children's diseases. Tonsillectomy five years ago.

Family history: Irrelevant.

Present illness: Began in October, 1921, with sore throat lasting one week, accompanied by pain in joints. Recurrence in two days accompanied by epistaxis. Subsequent arthritic pains, dyspnea, morning cough with frothy expectoration were noted, associated with gradually increasing weakness and quite perceptible loss of weight.

Physical examination: Pale, well developed, poorly nourished girl.

Head, neck and lungs negative. Throat normal; tonsils had been well removed.

Heart: Enlargement noted. Murmurs noted over mitral and tricuspid areas.

Abdomen and extremities: No pathology.

Blood examination (differential): Hemoglobin, 65 per cent. (Sahli), white count, 10,400; red count, 3,180,000; polynuclears, 57 per cent.; lymphocytes, 33 per cent.; transitionals, 7 per cent.; eosinophiles, 3 per cent.

Transfusion requested by Medical Service. Patient typed by serum method and found to be Group 2. Group 4 donor found.

First transfusion May 21, 1922. When about 100 c.c. of blood was given patient became cyanotic and orthopneic. Blood delivery immediately stopped and patient's condition gradually became normal. Subsequent hemoglobinuria. Feeling that a mistake had been made in the grouping, Laboratory Service retyped patient, again found Group 2 and secured a Group 2 donor.

Second transfusion May 29, 1922. But a few c.c. of blood entered recipient's vein before cyanosis and rapid death resulted.

Post-mortem findings: Acute triscuspid endocarditis; chronic mitral endocarditis; hydropericardium; ascites—thin, clear, red; chronic passive congestion of lungs, liver, spleen, kidneys and pancreas.

Healed tuberculosis of mesenteric lymph nodes.

Comments: Acute sepsis present as evidenced by the triscuspid leaflets. Death due to embolus composed of agglutinated red cells, which subsequently hemolyzed, thus making its discovery at autopsy impossible. The hemolyzed blood was not responsible, for Sellards and Minot[2] have shown that hemolyzed blood is not toxic to human beings. The serum of this patient probably contained isoagglutinins, a condition wherein all types of blood are agglutinated.

Two cases of purpura hemorrhagica, although neither one an operative mortality, presented interesting features.

Case 1. R. R. Jewess, age 43 years. Medical service. Admitted in poor condition, complaining of bleeding from gums. Examination showed gums in very bad condition, with constant bloody ooze. Where four teeth had been removed steady bleeding also appeared. Over shoulders, abdomen and limbs were petechiae one-half to one mm. in diameter. Blood picture that of severe secondary anemia with total absence of platelets. Bleeding not controlled by local means or hemostatic serum. Typed for transfusion and found to be Group 4. Transfused from sister, also Group 4, who allowed but 300 c.c. to be withdrawn. No reaction noted although a slight rise in temperature and pulse was noted on night of transfusion. Bleeding controlled and patient was discharged relieved one week later. At that time platelets had reappeared in blood stream and petechiae had vanished.

Readmitted two months later. Bleeding from gums more profusely than ever. Petechiae again present. Blood smear showed several megaloblasts, atypical white cells and absence of platelets. Each successive blood picture resembled that of pernicious anemia. Inasmuch as previous transfusion had been at least temporarily beneficial, another was planned. Patient again found to be Group 4. A number of donors were typed before a Group 4 was found. As a control, the patient's serum and the donor's corpuscles in 1 per cent. sodium citrate solution were brought together. A weak but suggestive agglutination resulted and when fresh-washed corpuscles were used the reaction was marked. Several known Group 4's were tried out against the patient's serum and marked agglutination with rapid hemolysis noted in every case. Transfusion abandoned. The patient rapidly became worse, and expired ten days later. Autopsy not permitted.

Comments: Probably sepsis again. Also another appearance of isoagglutinins, in fact autoisoagglutinins, for the patient's serum not only was capable of destroying other bloods, but her own as well. That such a condition exists has been demonstrated by Robertson and Rous,[3] who induced it in rabbits.

Dr. Kinnicutt, pathologist to Memorial Hospital, found that although this patient's serum

agglutinated all normal bloods, it did not affect the corpuscles of a man with moderately advanced pernicious anemia.

The last case I shall mention was one of secondary purpura hemorrhagica. The patient was a young Jewish male, the interesting features of whom were, bleeding from the gums, streptococcus hemolyticus in the blood stream, and a remarkable leucopenia. For the details, I refer you to the case report by Stansfield.[4] Transfusion in this case stopped the bleeding but produced a marked reaction attributable to the hemolytic organism in the blood stream. It is possible that bacteremia creates iso- and autoisoagglutinin properties in the serum.

Conclusions: Beneficial results may be recorded for the majority of cases cited in this series. The exceptions are the cases with acute sepsis, malignant disease, and the examples I mentioned in more detail.

The individual case, where there is no immediate need for transfusion, should be studied by the service referring it; the Laboratory service, who will type the donor and recipient, and last but not least by the man who is going to do the transfusion. I am afraid investigation would reveal that the average surgeon is familiar only with the pure mechanics of the task at hand, and not of the details that he leaves in the hands of the laboratory.

Thus, to avoid reactions in the non-immediate cases, let us not be content with merely grouping by means of known 2 and 3 serums, but bring the corpuscles of the donor and the serum of the recipient together under the cover glass as mentioned by Buckman.[5] And to be doubly sure, the donor's serum and the recipient's corpuscles. The red cells in each case should be either collected in physiological salt solution or freshly washed from a clot.

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CONVALESCENCE: V. THE WINIFRED MASTERSON BURKE RELIEF FOUNDATION.

BY JOHN BRYANT, M.D., BOSTON.

No student of convalescence can afford to remain ignorant of the ideals, methods, and accomplishments of the Burke Foundation at White Plains, New York. With its great endowment, and its superb location and equipment (for some 300 patients), it has since its opening in 1915 been to the convalescent poor of New York city as a veritable oasis in the desert of clinical neglect through which these sick people must somehow pass on being discharged for the most part only half-cured from the hospitals of the city, before they can hope to have sufficiently recovered in health to qualify themselves, free from the danger of relapse, for permanent occupation.

The object of this paper is, therefore, to make available, through a rearrangement of material in its third and fourth reports (1917-1921), some of the accumulating practical experience which has been acquired by the Burke Foundation through its contact with the approximately 35,000 patients who have been cared for in the comparatively few years since this great charity first opened its doors to the convalescent poor of New York City.

INTRODUCTION.

Institutional country convalescence is growing steadily in the larger population centers and gaining recognition as an essential part of any comprehensive health-plan. A distinctive American type of home is developing which takes the patients earlier in the convalescence, and receives many classes formerly considered inadmissible (heart disease, surgical dressings, border-mental, etc.). Judging individually each patient as to term required, carries them by graduated formative methods well onward into fitness for social living.

The prevention of illness and social failure forms an increasing proportion of this effort. Winter convalescence proves highly successful and needful; keeping places open for weeks or months in summer only leaves many regrettable inefficiencies. Men and older boys still lack adequate facilities, but interest is rightly turning their way. The convalescent field is broadening in practice and in outlook; a recent study has been made of the provision and needs in this vicinity (see publications) and important coordinations and extensions are in process.

The consultant and advisory work of the Foundation steadily advances and assumes far-reaching importance. Consultations here and in other cities, writings, reports and addresses by Staff members, and representation upon various Boards and Committees indicate some of the channels of aid given to the spread and scientific direction of the convalescent movement in America.

HISTORY AND ORGANIZATION.

The Winifred Masterson Burke Relief Foundation was founded and endowed by the late John Masterson Burke as a tribute to the memory of his mother. Terms of acceptance and the founder's purpose were briefly stated in the trust-deed as follows:

"The founder desires in his lifetime to dedicate a substantial part of his estate to the relief of worthy men and women, who, notwithstanding their willingness to support themselves, have become wholly or partly unable to do so by reason of sickness or misfortune, or have been discharged from hospitals before they have regained sufficient strength to resume their employments."

In addition to the foregoing gift made during his lifetime, Mr. Burke, in his will, left the residue of his estate to the Foundation.

It is planned not only to restore to health and occupation those recovering from illness or surgical operation, but to prevent sickness and failure by providing a period of recuperation, with freedom from worry and care during temporary residence in healthful surroundings.

In the autumn of nineteen hundred and eleven a

site was secured at White Plains for the Foundation by the purchase of some sixty acres of land from the Society of the New York Hospital.

The deed of the gift called for the erection of brick buildings, and it was specified that they must be plain and of substantial construction. The group, in Colonial architecture, relieved and made cheerful by white terra cotta and marble, encloses a large central court, and at present comprises eleven main buildings—cottages for men and women, administration, dining, laundry, power house, garage and stable and superintendent's house—with provision for future extensions.

The institution at White Plains was opened, without formality, for the reception of patients, on April seventh, nineteen hundred and fifteen. The capacity has been increased gradually to three hundred beds, appropriately divided between men, women, and adolescents, and the various classes of convalescents.

CONVALESCENT FIELD.

The Foundation has helped to demonstrate the need and the success of the institutional convalescence of men in large groupings, cardiacs, adolescents, the colored people, severe surgical dressing cases, hyperthyroidism, chorea, many forms of tuberculosis and the pre-tubercular—and has made advances in the experimental and limited reception of many border-line conditions hitherto considered inadmissible (lung abscess, gastro-enterostomy, psycho-neuroses, etc.).

Persistent organized effort will be made to secure a larger percentage of the so-called "preventive convalescence." On dispensary benches, in the street cars, at the machines and desks, may be seen these people who are tired and about to fail; in every employees' group are those working on too low reserves; many women are at all times approaching health-break in their homes; middle-aged men are feeling here and there the hopeless settling under cumulative permanent fatigue. These indicate the need of systematic direction of large numbers to these preventive, or merely holding recuperations.

Cardiacs with records of aggregate months in hospitals may be strengthened for long periods of reasonable productiveness; early nerve and mental borderliners turned back to fair livability and content; the tuberculous periodically re-enforced for their hard continuing battle; operations avoided, in selected cases, by upbuilding; the father or mother given temporary relief from the stresses of the struggling home; the breaking student nerve-rested, subnormal youths set forward with weight, blood, posture and character additions that are permanent; the discouraged and the indolent heartened and hardened for re-entrance upon normal careers.

The social-medical machinery for finding and sending these and like needful people out to country rejuvenations is mostly absent or inactive. However, by constant stirring and pressure at the sources we trust to steadily increase this "efficiency convalescence."

CHRONICS.

Persons with serious chronic conditions are usually considered ineligible to convalescent homes. But the border-lines are ever vague, and many chronics find proper place in our temporary care. This consideration has become the governing one in deciding admissions in this broad class (which includes most of the cardiacs, for example), and the word "chronic" is well-nigh set aside.

Those making application have learned to say: "We think that a brief upbuilding at the Burke Foundation will replace this chronically handicapped man or woman at work for a considerable period, or will prevent the threatening loss of it, etc." Keeping subnormal people at limited or intermittent production seems a most worthy function.

There is no sure border of chronicity for purposes of exclusion from convalescent homes. Each person should be judged as to disease, external circumstances and prospects of social living. Those returnable even to temporary and partially productive lives deserve the opportunity. The badly handicapped—as with malignancy, serious heart defect, bone disease, blindness—are at times given limited recuperations that may restore them to a measure of industrial or home usefulness and contentment.

Nor is convalescent age to be fairly scheduled other than by the above standards; for "years-old" are not fair measures of the reparability and potential communal values of persons. It is to be understood that old age (in its physiologic sense) reacts rather poorly in the active and somewhat restless country convalescent grouping; all welfare workers are insistent upon the need of many more "homes for the aged."

Preventive country recuperations are of proven success and importance in health-making and keeping, and main extensions in the convalescent field lie definitely in this direction. It requires, however, a great deal of social-medical organization to consummate even a fair beginning in this line. Those who should break environment and get away "in time" are not seen and selected, or are loath to go. In 1917 the Foundation circularized its patrons with view to getting a larger proportion of "preventive" patients. The results were becoming moderately gratifying, when war interfered. Resumption of the effort, requiring wide coöperations and long health-education, is planned.

MEN.

There are comparatively few beds for men convalescents in this great community. When their need of convalescence arises it is a more definite one than with women; the social workers recognize this. And the results with men are more rapid and measurable.

Respect for our average working manhood has steadily risen through this experiment. They wish to work and to care for others, and too frequently insist upon returning before they are fully recuperated. With the establishment of customs and manners through some early persistencies and discipline, this large grouping of heterogeneous men, bound to be giving minor difficulties always, has come to adapt somewhat automatically, and to show while with us marked advances in the "higher things," as well as in health and courage-outlook.

BOYS.

The difficult phases of boy convalescence were chosen—represented by heart disease, chorea, nervousness, pleurisy, empyema and the prolonged surgical dressings, tuberculosis (other than active pulmonary), malnutritions, anemias, etc. Weight increase is not considered as important as gains in blood enrichment, bone, muscle and posture, manners, courage and standards—in nerve reserves, in ambition and in manliness. This general result—a "set-up" for manhood—while not strictly measurable, makes us wish to see places for subnormal boys multiplied, for no phase of institutional convalescence gives better results.

But the young boys were faithfully tried in a cottage with men at White Plains for nearly a year, and discontinued as measurably detrimental in the larger mixed grouping. The adult minimum age for the men's side was reduced to fifteen, and considerable numbers of maturer adolescents (including cardiacs) are now in residence at all times. These adapt well, and add the salutary influences of youthful cheer, entertainment and leading activity.

PAY CONVALESCENCE.

There is moderate but persistent and well-considered demand for pay convalescence. A definite gap

exists between the free home and the expensive and often unsatisfactory sanatorium; here again it is the middle-class American who suffers most from lack of health opportunity. Such places should be established, partly endowed, and have rates that are frankly understood to be only partially supporting—thus maintaining valuable control-standards within the institution.

CITY COÖPERATIONS.

There are now about two hundred different hospitals, societies, firms, etc., sending us patients, with nearly two hundred more agencies or persons listed as making enquiries or coöperating in various ways. Relations with them grow in cordiality and helpfulness. The importance of the hospital's readiness to take back patients in relapse or intercurrence of disease can hardly be over-estimated, as it encourages our acceptance of the sicker and more doubtful applicants. Thus the convalescent institution is able to give a maximum of specialized health service.

THE ADMISSION DEPARTMENT.

An Admitting Office, with Supervisor of broad Social Service experience in authority, is of proven first importance. No excellence in country care can make up the wastage of a faulty choice. It is not too much to say that right admissions may double the health-value of the money and time expended. Through wrong selections alone a country home may become a fair vacation place, and yet be a fifty per cent. failure in convalescence.

With so many pressing for the opportunity, choice must settle upon the most urgent, needy and convalescable—with home conditions given full bearing. Organization and means are being extended also into the field of home convalescence, which rightly complements the institutional. At the Admission House lunches are served to patients before starting, reclining rest is provided, and the wear and tear of the admitting day tempered as much as possible. A few beds are available for those awaiting friends or placement. The methods of the Admission Department were particularly designed to avoid the inefficiencies incident to a waiting list, and the exhausting disappointments of visits and examinations by the many ineligibles. The vacancies and the fitness of the applicants are usually well determined by telephone, and large numbers spared the useless inquiry or journey. Applicants now come so well examined and recorded generally that the presence of a City Physician has been discontinued.

The City House, after making a memorable record in war-service, is notably broadening its clearing-house and welfare functions, besides the daily routine of the selection and preparation of patients from the stream of applicants—with the assistance in their orientation upon return from the country. There appear no ends to the extension of these valued advisory services to this community of millions—save the time and endurance of those in charge.

The City House accommodates for the present the offices of the Association for the Prevention and Relief of Heart Disease; health and civic organizations use its rooms frequently for scheduled meetings, and many committees and other informal gatherings occur there in the various welfare interests. It is a fully justified and growing part of the Foundation.

TRANSPORTATION OF PATIENTS.

The ride out into the open country is generally remembered as a most attractive feature of the convalescence. Ill effects are rare. Better transport of patients from the sources to our City Office would be desirable in many instances.

It is worthy of report, and important in determining the acceptance of more questionable cases, that the critically ill, requiring immediate hospital care, (pneumonia, relapsing heart-disease, etc.), instead of being endangered by the return trip reclining in the specially comfortable car, seem often rather to be improved by it—the slight vibration, the rush of air and the feeling of something positive being done apparently resulting in some temporary stimulation.

During the past year a specially designed thirty-passenger omnibus has successfully operated, making the twenty-six mile trip on ten-inch pneumatic tires in but little over an hour. Ill persons may recline on certain of the seats in case of need. Patients are moderately fatigued upon arrival (the day from early morning having been necessarily a trying one), but they respond quickly to the refreshment and rest immediately provided, and further ill effects are not recorded. Auxiliary sixteen and ten-passenger busses are owned, the latter adjusting to ambulance purposes for the return to hospital of those who occasionally become seriously ill—the inevitable outcome of admitting freely such wide classes in precarious states of health. Train service is utilized for overflow, or in severe snow-storms. The city agencies are now trying to get the patients to our Admission Department with least possible strain.

Ambulance transport to considerable distances of the very ill without injury is of proven importance because of its encouragement to take into convalescent homes the sicker and more needy classes, that are so generally excluded and deplorably "fall between" the standard health-care provisions. Also, ample land areas, suitable for convalescent care, are increasingly difficult to obtain near to the great centers of population.

FARM AND GROUNDS.

Men patients have been called to help on the land, and women to aid somewhat in cultivating flower gardens and play at hay-making, etc. But contrary to widespread and somewhat sentimental belief, farming in general is not here a very feasible convalescent occupation, because of the patient's short stay, the soiling of clothing and the general dislike of it. The old inspiring method of the country "bee" is however used often with much satisfaction.

Flowers, like music, are considered essential to convalescence, and are cultivated for all the seasons.

An infirmary was built and equipped, but it is now used for standard patients. Four "sick-rooms," held ready in the different sections, are found to meet this need adequately.

It is worthy of note that the results in winter as measured by our various records and observations have been only moderately less favorable than in the warmer months. Important factors are our corridors, the subways connecting all buildings and used by patients in severe weather, and miles of extensive hard surfaced roads and walks. Concrete ground-terraces surrounding the cottages have proven to be most valuable adjuncts, giving dry, wind-sheltered places. There is kindly insistence upon much outdoorness. Four sleeping porches may be used for special patients. Sun-treatment is given. The following posted notice has effect:

TO THE PATIENTS

> It is not well for you to sit indoors too much; go out often, in all weathers; stand erect, breathe deeply; play outdoor games. Take a walk of 15 to 40 minutes before each meal. As you gain in strength, exercise more.

NURSING.

The Directress has as immediate aides a Nurse-Assistant, a Dietitian and the Supervisor of Occupation and Recreation. The staff consists further of eight nurses, three of whom are undergraduates. Though the service has been steadily elaborated, one nurse has day-charge of from forty to fifty patients, made feasible by the constant enlistment of patients

as assistants and leaders in various minor ways. A male attendant assists in each of the men's sections, and trusty long-stay patients are given many helpful duty details. There is no training school. The Branch Institutions are supervised by trained nurses.

Convalescent nursing is distinctive. It is essentially practical management and re-training of diverse personalities in various kinds and stages of subnormal health—physical, mental, moral. The nurse's influence during this malleable period is proven to be potent and lasting. For years after, patients refer back to their nurse in gratefulness.

The thrice-weekly admitting and discharging, involving important decisions, regulating of constant minor complaints and ills, daily readjustments as to rooms, companions, etc., questions of passes and visitors, doctor's routine examinations and orders, bed-patients' care, local amusement and occupation, physical up-keep of the cottages, and the constant cheer and "welfare" to be given—these suggest the peculiar breadth of this service, the importance of the nurse-personality, and the demands upon her buoyancy and strength. Yet the immediate good results, with the general atmosphere of rest and cheer, react upon all attendants and employees and give them notably improved health and contentment.

DIETARY.

Our insistently low-protein diet has proven most satisfactory in convalescence with its moderated physical activity and various degrees of organic insufficiency. Patients are at first often doubtful of its suitability; but the six years' records of nerve, strength, and weight gains, quickly established good digestive and eliminative functioning without drugging, and the constant testimonials of its educational values to home economics and health in the after-lives, are abundantly confirmatory of the method. Talks on dietetics are given to patients. Description and analysis of this broad dietary experience with diverse conditions and peoples is elsewhere published.

RECREATION.

Play exercise (physical and mental) is given first rank among the curative agencies; in large grouping it is most effective, for it may act on more persons more hours of the day than any other, and with greater ease and neuro-muscular improvement. There is no sparing of the facilities, and their use depends much upon leadership and on being near at hand. The provision includes a central assembly hall for motion pictures, dancing and various entertainments, daily papers, all indoor games, piano and other musical instruments, many cottage pool tables for both sexes, four short-golf courses, tennis, croquet, hockey, hand volley, tether, basket and other ball play, soccer and baseball, snow sports, swings, hammocks and distant settees, etc.

Dancing (outdoors in summer) is ever foremost and best of recreations. Patients are urged into our sports and are practically never injured; they are, if anything, fearful too long, and grade carefully enough into the stimulating activities. Aggregate miles of hard-surfaced roads and paths leading directly from the extensive concrete cottage terraces induce to walking and the out-of-doors in all seasons and weathers. Afternoon freedom of the adjacent country roads, and supervised hikes are given.

The splendid athletic field is open to the high school leagues and other visiting organizations, their coaching practice and well-mannered crowds adding much to entertainment and uplift.

Church, visitors, hikes and bi-weekly trips into the near town; music, woods and flowers, the dining and special refreshment hours, all the snow sports, field days, patient-talent entertainments, etc.—help to make the days go happily. But perhaps the most important, after all, of the recreational agencies is just talk—hearty democratic interchange among the many coming and going weekly, gently wearing off the invalid edges and leading out of self to normality.

Constant inspiration is required, and advanced patients are enlisted to aid the Supervisor of the Recreational Department. The variously disheartened and doubtful persons grade all too slowly, and with proven safety, into play activities, which are prescribed, graduated, and even enforced with certain classes—as heart disease, neuroses, the persistent inertias, etc. Inducing re-entry of the older ones to younger age plays proves ever valuable therapy. Prize tournament and group-play is much used indoors and out. Cottage rivalries are stirred, and no inconsiderable convalescent effects thus precede and follow, and accrue ever largely also to the onlookers. There is convalescence in merely being out of doors.

It is not enough to provide play apparatus; leadership is needed. The onlookers in fact may get largest aggregate values; *e.g.*, a pool tournament is arranged to finish in the "assembly" before the entire institution.

Some advantages of the large institution are thus suggested. The near-normal community recreational activities serve to hold large numbers of the younger (men especially) who would not go to or remain long enough in the quiet small place (which may so well adapt to other kinds). In answer to the frequent query it may be stated that sex difficulties are minor and easily administrable; that the bi-play of sex association is definitely convalescent (based upon the psychology of desire of each to appear strong, good-looking and competent to the other); that boys and girls are not deteriorated by convalescent residence with adults, but that each rather helps to raise the tone in the other age-groups. Men and women meet all day in the central court, in all assemblies, dances, etc., in group play and in occupation. A great deal of the best recreational therapy is impossible without this mixing that simulates everyday life—for which all are preparing.

OCCUPATIONAL THERAPY.

Occupational therapy has gradually taken large place in the reconstructive program. About 90 per cent. of our patients are in prescribed occupation for from one to two hours daily. All have light room-care and other cottage duties. New arrivals are given from one day to two weeks of rest and accustoming. The short average stay (three weeks, and but a portion of this time available for set occupations) necessitates peculiar adaptations.

Our occupation grows, however, and is considered not chiefly diversional, but reconstructive, curative; and is directed—not merely urged. It is prescribed, in writing, for more than one-third cardiacs, hyperthyroids, choreics, all the border mental and nerve folks, the inherently restless, all long stayers, the temperamentally difficult, the quitters, the pampered, the defibred and disheartened. Practically all patients do something daily for the institution, or for themselves and their homes.

We say: "Avoid another break in your health cycle (on leaving us); you can get ready for life-work only by exercising, hardening, working here." Our message back with the recuperated person frequently carries substance as follows: "This man came to us with vague future plans, mainly for continued dependence on family or charity; he had ceased to think in terms of work. He was at once set to helping others, and soon joined one of the occupation classes. Progress has been slow, but at the end of five weeks he is not only physically competent, but becoming restless to leave us and 'get a job.' This is the opportunity to reconstruct one man; will you see him placed, and then held for a seasoning period in suitable occupation?"

Work that gives physical exercise has gained in

favor, especially if outdoors. There are the usual shops for cement, carpentry, general repairs, basketry, painting, art work, etc., and a percentage of sitting assignments is needed for the weaker and the variously crippled; but the best of this therapy is embodied in creating and keeping the place—grading, path-building, concreting, transplanting, forestry, lawn-care, gardening, and upkeep, snow-removal, preparation and care of the many sports-grounds, etc. Women moderately engage in some of these activities and do mending and "seamstress" work for the institution. Many minor "aids" and leaderships are devised for patients—as, library and book repair, mail, office help, errands, monitors, policing, athletic leading, etc.

The extent of this activity in one direction is shown by our having no seamstress department—patients covering all this, besides making surgical supplies and much new equipment. Thus they are in large measure making and keeping the plant, and they feel it rightly. Our employees are recruited mainly from the ranks of patients.

Some long-stayers grade into from three to six hours' daily work about the place, for a modest wage—and often from this into the regular employees' group. Tailor, barber, cobbler and other repair shops are manned by handicapped patients on a part-pay basis. The institution determines low-price-schedules and pays for the "fixing-up" of patients who are wholly without means. Money from sales of patients' products is applied to the Research Fund.

This prescribed, supervised, graduated work-exercise gives ever the well-understood physical and neuromental health values; but in our convalescence its first importance has come to be thought of as test of the individual attitude toward the reparative effort, and life ahead. Through this means alone there is a weeding-out of the mild malingerers, border-line neuro- and psychopathics, quitters, the too ambitious, the hypersensitive, the disloyal and disturbing; and special attention may then be given these measurably ill-adapting ones. It is gratifying testimony to the importance of this régime that increasing numbers are selected by health workers to be sent here for this very testing—in the hope that rehabilitation may begin with us.

HEART DISEASE.

Convalescent homes generally do not receive cardiacs. The Foundation recognized the extent and importance of this problem even before the buildings were completed, and assisted in early outside experimental efforts. Selected heart disease patients were admitted from the start. Eighty beds are now apportioned to this condition. Over 3,000 heart patients have been treated—mostly benefited and strengthened, and instructed for better adaptation to social and occupational conditions.

About $200,000 have been appropriated to this work. Methods and results are studied and reported upon (available in reprint publications). The heart convalescent procedures are still undergoing experiment and change, but the essentials bid fair to remain: that selection and preparation of patients be held with those having wide experience in the requirements (practically the Special Cardiac Clinics); treatment to include rest, graduated exercise, continuation schooling, occupation-therapy and beginning vocational guidance—and usually some mental and nerve readjustments; length of stay to be determined separately for each patient; arrangements to direct the discharged patients immediately into suitable education, occupation and environment, and for their steady or periodic advising therein (Cardiac Classes); re-convalescence (briefer-preventive) when signs of heart or general fatigue appear.

Heart convalescence in New York and vicinity has grown within six years from the well-nigh negligible to the near ideal. Valued standards are forming; different homes are adapting to different classes and conditions; central information and clearing by the Heart Association is proving important. The prevention of diseased heart overstrain lags; organization has yet much to advance in this phase, for which country convalescence extensions will obviously be required.

But if much is to be accomplished the condition must be met early. Heart disease is largely preventable—in youth; affected children and adolescents respond best to the rest-upbuilding; and their flexibility renders vocational and life-directing influences more effective.

The first one hundred and eighty, of over three hundred, cardiac boys (special investigation) sent out from "Sunny Brae" with a record of but two relapses at the home, 4 per cent. only of partial convalescent failures, and a "follow" record of 85 per cent. successfully in school or wage-earning one to three years after—should encourage additions to facilities for both boys and girls. The need is clear, and economically and socially important.

Why the country for this condition?—is asked. The rest and the diminished stresses, lowered incidence of the reinfections, open spaces and distances inducing to almost automatic and most beneficial walk, play, work and mental exercises—these and other advantages of rural environment precisely apply in reconstructive convalescence of heart disease.

ADVICE TO HEART PATIENTS.

Persons with heart disease may have reasonably successful lives by choosing the right work, play and living conditions; and continuing under direction of skilled advisers.

You have come here to take the special strengthening treatment, and you are expected to fully cooperate in the prescribed rest, work, play, walking and gymnastic exercises.

The length of stay is judged separately for each patient; plan to remain until our physicians decide that you are ready to return and take up suitable occupation. Leaving too soon may result in another breakdown and permanent invalidism.

When discharged return promptly to the clinic that sent you out, and confer with them about your future.

SURGICAL DRESSINGS.

Convalescent homes may well do all of the smaller and many of the major surgical dressings while the patients are upbuilding and strengthening the more rapidly, releasing hundreds of hospital beds to proper use in acute and emergent conditions. But they are loath to accept most of these cases for fear of inability and complications, yet in no other way could they so safely and inexpensively add to their community service. Surgical dressing patients recuperate more speedily and surely than any other kind of convalescents, and should have these opportunities. The unfortunate disinclination of surgeons to let patients go out early enough is to be gradually overcome by the evidences of unusual wound-healing and vital gains—better consummating their end-results in all ways.

A nurse gives full time to our surgical service, with resident physician's oversight; dressings (now totaling over 100,000) are made as simply and as infrequently as possible (aseptic, non-interference method), and there has been no single record of infection or other discreditable complication.

Two thousand dressings have been done in one month; the average is about 1,300. Naval occupancy doubled this work for a time; seventy empyemas were under care at one period, and it was our privilege to aid in the restoration of the seriously wounded Marines.

Wound coverings are reduced to a minimum, for air and sun effects. Patients with open wounds grade

beneficially into the play and work exercises. Persons with persistent wounds, sinuses, etc., yet with fair reserve and activity, are sent back after general upbuilding to be handicapped wage-earners, under dispensary or private care.

Surgeons who first sent many special directions now trust patients fully to us, knowing that they will be returned promptly if not progressing well, and also for all scheduled readjustments, examinations, etc. Early operative wounds, recent and compound fractures, the most serious empyemas (often passed back and forth through re-operations), colostomies, mastoids—these will indicate the range and importance of this surgical extension in convalescent service.

DENTISTRY.

Convalescence is frequently retarded, or fails even, because of toothache and other dental troubles. Absorption may also be an important deleterious factor—as with cardiacs, arthritics, etc.

We are prepared to do minor dentistry, but more than this seems at present inappropriate to the convalescent stay. May we urge that the patients' mouth conditions (tonsils included) be given careful consideration before sending? Large health and time gains will assuredly result.

Clean-up and temporary work before admission, emergency dental care while at the institution, with adequate treatment immediately following—suggests the ideal.

VISITORS.

Regular visits to patients have been stopped after full trial and gradual reductions. Their ill effects considerably overbalanced their good; main consideration being that the mental therapy and the feeling of "change" so essential in this work, apply better without them. Visitors bring home-worries, undesirable gifts, and general unrest, which not infrequently take the patients away too soon. Individual exceptions are freely made, by written permit.

STATISTICAL REPORT.

May, 1917, to May, 1919; and May, 1919, to May, 1921.

	1917 to 1919	1919 to 1921
Number of patients admitted.....	7,816	10,111
Medical Cases	4,070	5,754
Surgical Cases	3,746	4,357
Male Patients	3,332	4,836
Female Patients	3,071	4,528
Navy Patients (Official)*		
Commissioned Officers 125		
Enlisted Men 1,288	1,413	
Boys (under 16)		458
Girls (under 16)		289
Cardiacs Admitted		1,176
Total Days Treatment	172,645	203,572
Average Patients per Day	236	278
Average Days Stay, Navy Patients	35	
Average Days Stay, Men	20	20
Average Days Stay, Women	20	19
Average Days Stay, Cardiacs		26
Average Weight Gain in Pounds, Navy Patients	2	
Average Weight Gain in Pounds, Men	3	3
Average Weight Gain in Pounds, Women	3	2
Average Weight Gain in Pounds, Cardiacs		2

*In addition, many from the various military organizations of this and the allied nations were treated.

STATISTICAL REPORT (*continued*).

May, 1917, to May, 1919; and May, 1919, to May, 1921.

	1917 to 1919	1919 to 1921
Number Returned to Hospitals, relapsed or seriously ill.....	45	44
Deaths in the Institution.....	5	7
Remaining More Than Four Weeks		1,549
Patients Sent by Motor Bus		6,439
Patients Sent by Train		2,916
Patients Sent by Other Conveyances		756

The terms "cured," "unimproved," etc., have no very accurate or valuable application to convalescent results. A small group might be listed as "unimproved," but losses in one way are often more than balanced by gains in another. In this latter grouping would be included that considerable number leaving for various unavoidable causes, after very brief stay.

Each is judged individually and effort made to consummate the high point of convalescence. Some are discharged in one week; others, after three to five months, as in cases of progressive healing or severe surgical wounds, etc.

VARIETY OF DISEASES AND CONDITIONS TREATED.

Nearly every diagnosis and subnormal condition occurring in this climatic zone is represented in our lists. The most important, given in order of numbers, are: surgical operations and conditions, nerve fatigue and the various neuroses, heart disease, pneumonia, gastric and intestinal ulcers, appendicitis, pleurisy, tuberculosis (mainly non-pulmonary and preventive), empyema, thyroid disease, influenza, bronchitis, rheumatic fever, anemias.

CONCLUSIONS.

(From six years of service.)

1. Careful selection of patients—centralized, but with a moving zone of experiment—is of the first importance.
2. Motor transportation on large pneumatic tires is best and cheapest. The seriously ill may be safely returned over long distances in the modern ambulance.
3. The individualized length of stay, from one week to months, avoids the waste and injustice of a fixed period.
4. In general, a low-protein diet proves best in the period of convalescence. Special dieting (with attention to food fears or particularizing generally) has but little place in the convalescent home.
5. The prescribed play and work therapies are highly important in convalescence.
6. Heart disease, if rightly selected, may be given at least 15 per cent. place in standard convalescent institutions, but certain separate smaller homes are also desirable.
7. Different ages, classes, sexes, races, are successfully convalesced together. This association simulates normal life—being prepared for.
8. Homelikeness is secondary in the larger convalescent home; a measure of frank institutionalism, with its democracy and momentum, gives superior results.
9. A most important product of the good convalescent institution is its restoration of courage and right outlook—to a higher grade of living.
10. There is need of more convalescent provision for the nerve and mental border-line, men and older boys, babies and young children with and without mothers, certain lung conditions, orthopedics, and for the preventive phases generally. Surgical patients should be earlier sent out to homes.

Book Reviews.

The Chemistry of Tuberculosis. By H. GIDEON WELLS, M.D., Ph.D.; LYDIA M. DEWITT, M.D., A.M., ESMOND R. LONG, Ph.D. Baltimore: Williams & Wilkins Co.

This volume, attractively printed and bound, consists of nearly 500 pages devoted to the complex and difficult subject, "The Chemistry of Tuberculosis." As the authors state, it is a compilation and critical review of existing knowledge rather than a contribution of anything new.

It is distinctly a book for students, and for extremely advanced students and specialists at that. It does not concern the clinician. The only chapters which would interest the practicing physician are those on the chemistry of tuberculosis as it concerns treatment,—creosote, guaiacol, and other preparations being properly labelled as false specifics.

To those who are interested in this most difficult and complex matter—the chemistry of tuberculosis—this book will be invaluable. It represents an immense amount of work and must be very much a labor of love.

The New Psychology and the Teacher. By H. CRICHTON MILLER, M.A., M.D. New York: Thomas Seltzer, 1922.

Among the many recent books inspired by the "New Psychology" this one by Dr. Miller seems one of the best. While he makes abundant use of the results of psychopathological investigation, he does not much emphasize unnecessary details—a great relief to the general reader. But the reader who expects specific advice in teaching will be disappointed, because it is obvious that the writer is not a teacher. As to a large and philosophic view, however, from which the born teacher can get a glimpse of the material, so to speak, involved in teaching, that is there in goodly proportions, especially in the chapters, "Authority and Suggestibility" and "The Herd Instinct and the Herd Ideal."

The author has two chapters on "Emotional Development," one on the boy's and one on the girl's. The chapter on the boy is admirable, especially in emphasizing the necessity of the boy's emancipation from a too great maternal influence, and in showing some of the advantages to boys of the great English public schools. But the chapter on girls shows less insight, the author being less concerned, apparently, with appropriate ideals for girls than for boys, and therefore concerning himself more with symptoms than with causes.

The author's social idealism and emphasis on personal high-mindedness seems to me to be beyond praise, and gives his book the right to be regarded as a distinct contribution to a subject all too easily to be regarded from a lower, rather than a higher, level. But a good deal of what he says sounds *ex cathedra*. Without being too sure of it, I believe the author has a good deal of the Jehova Complex in his make-up. Sometimes he sounds rather glib.

The author permits himself to make some emotional, and obvious, statements that seem of little value, *i.e.*, "We put up a barrier when we restrain children *unnecessarily* . . . when *without reason* we demand that they should inhibit interest," etc. (Page 30.) (Italics mine.)

The Jehova Complex shows up nicely in "The second barrier is raised when we offer to the child a world that is too harsh, too puzzling and too difficult for its powers of adjustment. This is the barrier of reality." This sounds as though reality, and a too harsh, too puzzling, and too difficult world were within the parent's hands to give or to withhold. And it sounds a little glib to hear that "the destiny of the child is social efficiency. The problem of the child is psychical freedom; the obstacle to the child is authority, and the test of every child's development is his final attitude toward racial experience."

But it is an ungrateful task to criticize adversely a book that, on the whole, is deserving of much praise. To many it will give a glimpse into an entirely new realm of thought, and to change comparisons, readers may be safely trusted to add that pinch of salt usually needed to season properly the new dish enthusiastically offered by an amateur cook.

Is Coué a Foe to Christianity? By Another Gentleman with a Duster. New York: Frederic Moore. Pp. 121. Price $1.25 net.

This little volume consists of a number of brief observations and suggestive paragraphs concerning the American tour of M. Coué. The writer assumes that Coué was brought here for a purpose, and expresses, in rather a vague way, the belief that Coué's doctrines were promulgated with the idea of taking the religion out of Christian Science. In other words, Coué was to teach a method of mental healing which did not require adherence to any particular religious sect. The object in spreading his teachings was to prevent the going over of the Jews from their own religion to Christian Science.

The book is rather interesting reading, but is very inconclusive. In estimating the true value of Couéism, the writer maintains that it is excellent for those who have imaginary pains and illnesses; for those who are really sick, this system of healing, inasmuch as it prevents a patient from getting early medical attention, is really harmful.

The Patient's Viewpoint. By Dr. Palmee J. Flagg. Milwaukee: The Bruce Publishing Company. Price $1.30.

This small volume, according to the author's prefatory statement, was prepared for the purpose of meeting what appears to be a vital need in the medical world of today, namely, a reconsideration of fundamental truths.

The boundary of metaphysics is skirted and the theory of evolution mildly doubted in the author's endeavor to bring out a very good point, namely, that the living human body contains something not purely material, for which we have accepted the name of soul, and that there must be an original Creator, who breathed the first spark of life into the first living object and may still control the universal destiny.

In these chapters, which carry the medical student on from his matriculation to his years of riper judgment, however, he is shown as entertaining a calloused and atheistic point of view, which I do not believe can be accepted as the common rule. Patients, as a whole, whether hospital or private, have, in my experience, been treated with a great deal more consideration than Dr. Flagg gives us credit for. Most students, house officers and older physicians, as I have seen them, are very ready to treat their patients as suffering fellow beings.

In the daily grind of great hospitals, nevertheless, there may often be a tendency to speed and over-efficiency; to the regarding of the patient as a case or a bit of piece work, to be turned out as rapidly as possible, and this tendence may well be frequently held up before us with a warning attached.

Other chapters set forth the outstanding characteristics of the civil hospital and that under religious control, the difference between the general practitioner and the specialist, and the possible relations existing between doctor and nurse. The question of professional fees is discussed and the result of pure materialism is shown to us as an argument in favor of the maintenance of a practical monotheism.

As a medical essay—and an essay it is—this little book contains practical philosophy and a lesson.

PROVISIONAL BIRTH FIGURES: 1922.

The Department of Commerce announces that provisional birth figures compiled by the Bureau of the Census for 1922 show lower birth rates than for 1921.

For the 24 states shown for both years, the 1922 birth rate was 22.7, against a rate of 24.4 for 1921, the highest 1922 rate being 30.2, for North Carolina, and the lowest 18, for the State of Washington.—Department of Commerce, Washington.

Current Literature Department.

ABSTRACTORS.

Gerardo M. Balboni
William B. Breed
Laurence D. Chapin
Austin W. Cheever
Randall Clifford
Isador Coriat
Ernest M. Daland
Horace Gray
Robert M. Green
John B. Hawes, 2d.
John S. Hodgson
Fred S. Hopkins
Chester M. Jones
Charles D. Lawrence
Tracy Mallory
Herman A. Osgood
Francis W. Palfrey
Edward H. Risley
George C. Shattuck
William H. Shedden
Warren R. Sisson
George G. Smith
John B. Swift, Jr.
Wilder Tileston
Bryant D. Wetherell.

STUDIES IN EXPERIMENTAL TRAUMATIC SHOCK: THE ACTION OF ETHER ON THE CIRCULATION IN TRAUMATIC SHOCK.

Cattell, McK. (*Arch. of Surg.*, January, 1923) writes as follows:

In the normal animal, the inhalation of strong ether results in a sudden drop in the arterial pressure, which is quite temporary. As the anesthesia deepens, the pressure gradually recovers until, by the time the eye reflex has disappeared, it may have returned to its original level.

In the shocked animal, there is no recovery of the blood pressure after the primary fall, and the pressure continues to fall to zero even before the eye reflex disappears.

Nitrous oxid and oxygen, in the most favorable proportions, can be administered to the shocked animal without causing more than a slight drop in blood pressure.

Observations on the heart volume of intact cats, and on the contractions of the isolated cold-blooded heart, together with deductions from blood pressure records, show that the administration of ether, from its very beginning, results in a depression of the heart, and a decrease in its output, which is sufficient to account for the fall in pressure in both the normal and the shocked animals.

The injection of large doses of epinephrin intravenously in shocked animals usually results in the disappearance of the sensitiveness to ether for a period of an hour or more. Evidence is cited indicating that this is due to an antagonistic action of the ether on the heart. Pituitary extract does not influence the pressure drop produced by ether in the shocked animal.

Determinations of leg volume with a plethysmograph, perfusion rate measurements, and results obtained by the injection of ether directly into the circulation, together with the form of the blood pressure curves, indicate that ether causes a contraction of the peripheral vessels. This constriction may be caused by (*a*) a direct stimulation of the vasomotor center and (*b*) a reflex to the fall in pressure resulting from a depression of the heart.

In the blood pressure curves resulting from the administration of ether in the normal animal, the primary drop is probably due to an influence on the heart; and the subsequent recovery of the blood pressure, to a compensatory vasoconstriction.

In the shocked animal, no evidence of a vasoconstriction produced by ether was obtained, and pressor effects from asphyxia or sensory nerve stimulation become less or are entirely absent.

The condition of ether sensitiveness is brought about by any circumstances which tend to depress the general condition of the animal, such as low

blood pressure, hemorrhage, severe operations or the injection of acid into the circulation.

The cause of the greater depressing influence of ether on the blood pressure in shock appears to be due to a disturbance of the vasomotor system. The usual compensatory constriction no longer occurs to offset the decreased output of the heart, and the pressure continues to fall. This might be due to a depression of the vasomotor center, or to an already existing maximum tone of the center, so that there could be no compensation. [E. H. R.]

The Effect of Antiseptics on the Bacterial Flora of the Upper Air Passages.

Bloomfield (*Johns Hopkins Hosp. Bull.*, Feb., 1923) reports his interesting experiments as to the effect of various antiseptics on the bacteria and acute infections of the upper air passages.

His experiments show that while it was possible in some cases to modify the bacterial flora by intensive treatments no essential or permanent alteration could be produced. It seems pertinent, therefore, to inquire into the causes of such failures and to reconcile them with the strikingly different effects obtained *in vitro*. In a previous paper it was shown that the persistence of organisms in the mouth depended upon the establishment of a vital reaction between the bacteria and the mucous membranes of the host, involving a close relationship both functionally and anatomically, and that the organisms were growing not only on the mucous membrane but in the superficial layers as well—probably in crevices between the epithelial cells and in the orifices of the small mucous glands. From these niduses of growth bacteria are discharged into the mouth secretions, but the niduses themselves remain more or less intact. Under other conditions organisms may become established in a focus of diseased tissue such as tonsil, adenoid or sinus in a somewhat analogous manner. It is obvious, then, that the bacteria actually multiplying are very firmly lodged in the tissues and are not growing free on the surface or in the mouth secretions. It seems unlikely, therefore, that chemicals applied to the mucous surfaces could effect sterlization without destroying the superficial layers of epithelium at the same time. In this connection the mercurochrome experiments are of special interest. This drug penetrates to such an extent that the treated membrane shows a distinct red color even after twenty-four hours. None the less the flora remains essentially unaffected.

An attempt should be made to reconcile these findings with the clinical impressions of experienced laryngologists to the effect that the application of antiseptics is of value in the treatment of acute and chronic inflammations of the nose and throat. It is possible, in the first place, that inflammatory processes due to some unknown type of virus (colds(?), pharyngitis(?), rhinitis(?)) are affected by antiseptics in a manner different from those due to known bacteria, or it may be that a beneficial effect indirectly follows irritation, hyperemia, or ischemia produced by the drug. In view of these experiments, however, it seems that conservatism is necessary in interpreting clinical results.

If one regards the desiderata in treating an inflammation of the upper air passages as drainage, a wet dressing, and (in some conditions) stimulation, it would seem that a drug might be better withheld unless it definitely promotes the above conditions. It may be that in acute coryza, pharyngitis, tonsillitis, and rhinitis better results will follow the use of bland washes such as salt solution, and drugs which aid drainage by shrinking the mucous membranes, such as cocaine and adrenaline, rather than the strong and irritating antiseptics, such as silver and mercury. [J. B. H.]

Studies on the Influence of Pregnancy in Syphilis.

Moore (*Johns Hopkins Hosp. Bull.*, March, 1923), discussing the influence of pregnancy in syphilis, summarizes his remarks as follows:

1. A critical study of the clinical and experimental evidence in the literature shows that in all probability neither Colles' law nor the theory of the paternal transmission of syphilis directly to the fetus are valid.

2. The clinical data supplied by this study of 178 pregnant women with positive blood Wassermann reactions and 22 non-pregnant mothers of syphilitic children supports this belief.

3. Forty-four of these women, or 22 per cent., had outspoken lesions or early or late syphilis at the time of admission. Of the remainder, syphilis was proved or strongly suggested by the history, physical examination, response to treatment, or subsequent course, or a combination of these factors, in 72 per cent. In only 21.5 per cent. of the total 200 cases, therefore, were all evidences of syphilis (except a positive blood Wassermann) lacking.

4. This study also demonstrates that the factor of pregnancy may cause striking deviations from the usual course of syphilitic infection. If impregnation and infection approximately coincide, or if infection occurs during the course of pregnancy, the patient may develop the usual early manifestations of syphilis, which are, however, much milder than if she is infected independently of pregnancy. Of those pregnant patients in whom the probable date of infection could be compared with the type of lesions present, approximately one-half behaved toward infection in this manner.

5. A slightly larger proportion of women, if infected with syphilis at about the time of impregnation, fail to develop any of the usual early lesions of syphilis. Under these circumstances, it is fair to assume that pregnancy is the factor which suppresses the lesions of the disease.

6. In a few patients (in this series, three of two hundred women), the response to infection acquired at the beginning of or during pregnancy is markedly altered. The usual time relations between primary and secondary syphilis are much prolonged; on the other hand, the interval between early syphilis and tertiarism may be much shortened, and grave lesions of a tertiary type may appear early in the course of the disease.

7. The protection against the early lesions of syphilis afforded by pregnancy may persist over a long period of years, and possibly for a lifetime. Spontaneous cure of syphilis seems in a few instances to have been the ultimate result. In those women of this series who developed late syphilis, the viscera, and particularly the cardio-vascular apparatus, were especially prone to involvement; whereas tertiary lesions of the skin or bones and neuro-syphilis, either clinical or asymptomatic, were rare.

8. It is shown that in 33 of these 200 patients, the blood Wassermann reaction gave anomalous results. In 10 per cent. of the pregnant women with secondary syphilis, the reaction was negative. In the women with latent syphilis, it was prone to vacillate markedly without treatment; and in a number of cases, a negative or positive reaction during pregnancy spontaneously changed to the reverse after delivery. The possible factors responsible for this condition are briefly considered.

9. The nature of the mechanism by which pregnancy causes these alterations in the course of syphilitic infection is unknown. Various possibilities are mentioned. [J. B. H.]

The Bactericidal Action of Ultra-Violet Light.

Bayne-Jones and Van der Lingen (*Johns Hopkins Hosp. Bull.*, Jan., 1923) discuss the effects of ultra-violet light upon bacteria, concluding as follows:

1. The bactericidal action of light is confined to the ultra-violet region of the spectrum, beginning at 350$\mu\mu$, and extending with increasing intensity to the shortest wave-lengths measurable with a quartz spectrograph: 185.6$\mu\mu$.

2. These limits coincide with the absorption of ultra-violet light by bacteria.

3. The temperature coefficient for the bactericidal action of light was found to be 1.05 over a range of 10° C., and the constant μ in the formula of Arrhenius was 934 to 975.

4. An increase in hydrogen-ion concentration of the fluid in which bacteria are suspended during their exposure to ultra-violet light increased the velocity of the bactericidal action. The accelerating effect began at Ph 4.6, the isoelectric point, and was very strong in fluids more acid than this.

5. Neither temperature nor the hydrogen-ion concentration rendered bacteria sensitive to the longer wave-lengths of light. [J. B. H.]

The Wassermann Reaction in the Johns Hopkins Hospital.

Keidel and Moore (*Johns Hopkins Hosp. Bull.*, Jan., 1923) urge the use of a Wassermann reaction as a routine measure in every large hospital. In the Johns Hopkins Hospital as in most others, in their opinion, thousands of patients with syphilis are allowed to pass through without detection or treatment because of the omission of the Wassermann test as a routine. The Wassermann test, while, of course, not absolutely reliable as an index to syphilitic infection, is, nevertheless, the best available guide and should be a routine procedure on every patient who enters. A general hospital should provide sufficient laboratory space and equipment to make this possible, and should organize and maintain a sufficiently well-staffed and organized clinic to permit adequate anti-syphilitic treatment for every patient discovered. [J. B. H.]

Studies on Sugar Tolerance.

Major (*Johns Hopkins Hosp. Bull.*, Jan., 1923) concludes his remarks on the sugar tolerance as follows:

The results of glucose tolerance tests on sixty patients are reported.

The diabetic type of sugar curve with glycosuria is constant in diabetic mellitus. The level of the sugar threshold varied greatly, showing a tendency to be higher in older individuals.

All the cases of acute nephritis studied showed a diabetic type of blood sugar curve usually without glycosuria.

No constant type of curve was obtained in thyroid or pituitary disease. Abnormal curves are frequent and indicate a disturbance of carbohydrate metabolism. Increased tolerance to carbohydrates was found in pituitary disease, often with a high sugar threshold.

Some of the glycosurias encountered in hyperthyroidism are due to a lowered renal threshold.

These observations indicate that, as a rule, the urine does not show sugar in appreciable amounts until a definite blood sugar level is reached. This level, or "renal threshold," varies somewhat in health, but markedly in disease. Repeated tests on the same individuals show marked variations in this "renal threshold." Four individuals classed as "renal diabetics" showed glycosuria with a blood sugar at normal or subnormal levels. [J. B. H.]

The Cause of Certain Acute Symptoms Following Gastro-Enterostomy.

Haden and Orr (*Johns Hopkins Hospital Bull.*, Jan., 1923) discuss the cause of sudden acute symptoms following gastro-enterostomy with the following summary and conclusion of their investigations:

Three cases are reported showing a high level of non-protein nitrogen of the blood, low blood chlorides and suppression of chloride excretion following gastro-enterostomy.

One patient had a marked alkalosis; two had a CO_2 combining power at the upper limit of normal when first determined.

Two patients also had a very high nitrogen excretion in the urine.

All three patients presented clinical symptoms of a severe intoxication.

The clinical picture and laboratory findings are believed to be due to an intoxication arising in the upper intestinal tract.

The fundamental cause in these cases is probably an obstruction at the site of the gastro-enterostomy which interferes with drainage of the duodenal loop. [J. B. H.]

Final Report on the Control of Yellow Fever, in Merida, Yucatan, Mexico.

Connor (*Am. Jour. of Trop. Med.*, Nov., 1922), in reporting the work of the International Health Board of the Rockefeller Foundation shows that Yucatan has been free from yellow fever for more than a year and it is believed that the disease has been eradicated from this area. A single case of yellow fever, however, has been reported recently on a farm south of Vera Cruz. [G. C. S.]

A Preliminary Survey of Tropical Diseases in Massachusetts.

Shattuck (*Am. Jour. of Trop. Med.*, Nov., 1922) reports that information obtained from the Massachusetts State Department of Health and from the records of a number of large hospitals in or near Boston over a period of five years, showed that 1106 cases of disease which may be classified as tropical have been diagnosed during this period. Twenty-four kinds of disease are included in this list. It is believed that cases of some of these diseases are considerably more numerous than is shown by the figures. Further data are given on the distribution and sources of the more prevalent of the diseases, namely: malaria, dysentery, smallpox, pellagra, elephantiasis and uncinariasis. [G. C. S.]

Journal Metabolic Research, August, 1922.

Allen's Summary of Publications on Insulin, each in from half a page to three pages, represents a kind of review not as common in the English language as might be wished. Such collected abstracts covering progress in a field seem worth wider use. This review should be read by all interested in diabetes. It covers insulin from its conception by Banting in 1920 to the middle of 1922.

Allen's exhaustive review of diabetic lipemia is laudable in the same way.

Jackson gives an interesting account of the microscopic appearance of the islands of Langerhans in various fishes which exhibit an unusual isolation and encapsulation of these portions of the pancreas.

Macleod reports that insulin is present in unaccountably abundant amounts in the dogfish and skate,

that it is readily extracted, and he suggests that this finding may be of practical value owing to the availability of these fishes.

Root and Miles report physical measurements on 133 diabetic patients, with a discussion of the relation of these measurements to body weight. Of the many interesting considerations the following may be mentioned:

Tolerance may be expressed, instead of as grams carbohydrate per day, better as grams glucose (carbohydrate plus carbohydrate fraction of protein and fat) per kilo per day.

"It is incorrect . . . to measure the chest circumference and predict the normal weight from that. . . . We advise investigation of the feasibility of substituting some bony diameters for use in predicting weight."

The chest girth changes with changes in weight, particularly as the individual tends to become obese, while for changes in the direction of emaciation the chest girth does not shrink proportionately. . . . This question of skeletal change is surely of considerable importance and needs investigation by radiographic methods.

They have carried to the limit Joslin's emphasis on obesity as an etiological factor, for they find it questionable whether *any* individuals among the cases measured . . . have diabetes without a previous . . . overweight period.

Wishart's paper on lipemia is too detailed to be summarized in a few words. Her finding that a high fat diet is conducive to lipemia agrees with other observers but not with the recent work of Marsh and Waller. It is certainly most regrettable that her notebooks containing ten thousand analyses were lost during the war. [H. G.]

Roentgen Injury.

Haas, of Budapest (*Wien. klin. Woch.*, Feb. 15, 1923) reports four cases of injury following deep Röntgen irradiation. Such continued irradiation can produce injury to the deep soft parts, consisting of bone pains and diffuse swelling. To avoid this he advises employing no more than five deep treatments, except in the presence of cancer. [R. M. G.]

Roentgen Diagnosis of Duodenal Ulcer.

Plenk reports from Pupovac's surgical clinic of Vienna (*Wien. klin. Woch.*, Feb. 22, 1923) the Roentgen findings on a series of operated cases of duodenal ulcer. Of these 84 per cent. showed positive preoperative findings by the x-ray, which the author therefore regards as of fundamental importance in the diagnosis. The value of negative finding is doubtful, since often at operation small crateriform ulcers were observed which were not shown by x-ray. [R. M. G.]

Pardotrophia.

Cumston, of Geneva, (*Annals of Medical History*, Dec., 1922) presents an interesting sketch of Scévole de Sainte-Marthe, and of his Latin poem, "Pardotrophia," on the diseases of nurslings. Scévole, whose real name was Goucher, belonged to an illustrious Poitevin family. He was a lawyer, president of the paymasters of France in the reigns of Henri III and IV, and mayor of Loudun. "Pardotrophia," dedicated to Henri III, was composed in 1584, but was not translated into French until 1698, by the author's son. The first book of the poem deals with the hygiene of pregnancy and the conduct of labor; the second with infant care and feeding; the third with diseases of the newborn, of which eighteen are enumerated. Emphasis is laid on the desirability of avoiding miscarriage and on the importance of breast feeding. Though not a physician, Scévole seems to have had an unusually clear understanding of the phenomena which he describes, and his work is a rare lay contribution to the history of French medicine in the sixteenth century. [R. M. G.]

Mortality in Surgery of Exophthalmic Goiter.

Pemberton (*Surg., Gyn. and Obstet.*, April, 1923) states that in the Mayo Clinic during the year 1922, 1093 operations were perrformed for exophthalmic goiter, with 11 deaths, a mortality of 1 per cent. During the same period, there were 663 thyroidectomies on 663 patients for adenomatous goiter without hyperthyroidism with one death, a mortality of .015.

The causes of death following the operation of patients for exophthalmic goiter may conveniently be divided into three groups: (1) death as a result of the disease and of the effects of the disease; (2) death as a direct result of an accident; (3) death as a joint result of disease and accident.

Group 1. The spontaneous crises of hyperthyroidism are sometimes observed while the patient is under treatment. One of the 11 deaths credited to surgery in the series of 1093 operations performed at the Mayo Clinic belonged to this group. The case is described. In this series of cases, one patient whose death is credited entirely to surgery may be included.

Statistics based on goiter operations do not give a correct idea of the operative risk of patients with exophthalmic goiter for the mortality rate will be diluted in direct ratio to the number of simple goiter (without hyperthyroidism) included in this computation. The danger of reactions following surgical procedures may be reduced to a minimum by preliminary treatment, proper estimation of the basal metabolic rate, and painstaking care in the management. The patients with visceral degenerative changes form the largest part of the mortality list in surgery of exophthalmic goiter. The operative risk is less and the benefits derived are greatest when the patient comes to surgery early in the course of disease before degenerative changes have occurred. [E. H. R.]

Angiomyoma of the Urinary Bladder.

Kidd and Turnbull (*Surg., Gyn. and Obstet.*, April, 1923) report on two case histories illustrating this condition, and present some half-tone plates showing the microscopical pathology. They state that angioma or angiomyoma is probably the rarest type of tumor met with in the urinary bladder. If the diagnosis can be made at an early date, operation may be successful, and should lead to a permanent cure; if not detected until a late stage, operation may be impossible, and death may occur from hemorrhage. [E. H. R.]

Primary Retroperitoneal Sarcoma.

Andrews (*Surg., Gyn. and Obstet.*, April, 1923) reports 28 cases from the Mayo Clinic, discusses symptoms, pathology and treatment, and sums up his remarks as follows:

1. Retroperitoneal sarcomata are seen so often that they should be constantly kept in mind in the diagnoses of abdominal disorders.
2. Trauma is apparently not a factor in the cause of retroperitoneal sarcoma.
3. Metastasis occurs in about 33 per cent. of cases; it is most often found in the liver and lungs.
4. The most characteristic physical finding is the colon in a groove on the anterior surface of the tumor.
5. The small round-cell sarcoma or lympho-sarcoma is the most common and most malignant type.
6. The prognosis is always unfavorable. A combination of radium and roentgen-ray seems to be the most satisfactory treatment thus far instituted. [E. H. R.]

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CESAREAN SECTION.

DURING the last few years many papers have been published reporting the favorable results of Cesarean section for various indications, under conditions favorable or otherwise, until the physician who pays any attention to the literature cannot fail to have been impressed with the fact that in the minds of certain obstetricians or surgeons Cesarean section is the only method by which a self-respecting patient can be delivered and maintain her standing in the community. Whether the operation was a necessary or even justifiable one for the given patient has received so little attention relatively that the impression on the public mind must have been that Cesarean section offers the only means of delivery which should be adopted in case any abnormality is evident or suspected, even though spontaneous labor might have resulted without injury to either patient, if a policy of non-interference had been adopted. The fact has been entirely lost sight of that Cesarean section is a major surgical operation; that major surgery carries with it very definite risks to the maternal life; and that even though the mother may live it is attended by high morbidity.

The advocates of this free use of Cesarean section seem to feel that the operation is a panacea for all obstetric ills, and they urge its performance in spite of the fact that reported series of cases show a death rate which is considerably higher than obtains in well-trained hands under other methods of delivery, and they give no figures as to the morbidity of the operation. A glance at the mortality statistics shows that of the women dying during pregnancy and labor in a given period of time approximately one-third die of complications which have been treated by Cesarean section. Whether the operation was advisable in the treatment of these complications or whether the patient would have survived if left to nature or treated by a more conservative method is not shown, but it is a fact that Cesarean section was at least a factor in approximately one-third of the deaths which occurred during parturition in Massachusetts in a period of some months. This fact is a sufficiently severe arraignment of the improper application of surgery to obstetrics to warrant a thoughtful consideration of the conditions which prevail at the present moment.

That the abuse of Cesarean section is receiving thoughtful attention is proven by the comparatively recent publication of various papers by thoughtful, conscientious obstetricians, calling attention to the bad results which have been and are being produced by the indiscriminate use of Cesarean section in cases in which the operation is often inadvisable and more often unnecessary.

There is no doubt but that Cesarean section performed on properly selected cases by well-trained surgeons under proper conditions constitutes one of the greatest advances in modern obstetrics, but it is equally certain that its indiscriminate application to patients who would be better treated in some other way, by men who have not had sufficient obstetrical training to determine whether the operation is a proper one under the conditions which are present in the given case, has resulted in a mortality and morbidity entirely out of proportion to the benefits which have accrued in the successful cases.

It would almost seem at the present moment that the principal indication for Cesarean section is a patient who is undelivered, who is either having a slow, unsatisfactory labor without complications, or who presents some obstetrical complication which requires careful study and consideration before the delivery is undertaken. In many cases spontaneous delivery would occur if the case were left to nature, and in other instances the interests of the patient would be better served if some other method of delivery were adopted.

The ease with which the operation can be performed by any man who has even moderate surgical facility and the good results obtained in properly selected cases tend to make it the

operation of choice for the poorly trained obstetrician or for the surgeon without obstetrical training who is called in consultation on a given case. The fact that in the first place it may be an unnecessary operation from any standpoint, and in the second place that it may be an operation which is absolutely unsuited to the needs of the individual patient seems to be lost sight of in many cases. Obstetrics for the best interest of the patient involves the expenditure of time and patience to a marked degree, but the tendency of our modern life is to rush from one thing to another as rapidly as possible, and therefore any procedure which will save time is sure to be popular, and a large amount of ill-judged operating is undertaken which results in the death or serious injury of many patients.

In the best hands the elective Cesarean section on absolutely clean cases, who are not in labor, and who present no complications, shows a mortality of approximately 1 per cent., but the moment the ideal conditions for the operation are departed from, the mortality rises rapidly. Many series of cases have been reported by well-trained obstetric surgeons in which 100 or more operations have been performed without mortality, but almost without exception every operator has sooner or later met his Waterloo and has had to report a certain number of disastrous results in patients who were apparently first-rate risks for the operation.

Cesarean section can only be considered as a proper operation when it confers a definite benefit on the patient. That benefit may be the saving of the maternal life in occasional cases, the preservation of the fetal life at a minimum risk to the mother in a considerable number of cases, and the avoidance of injury or the preservation of the health of one or both patients at the expense of a slight increase in the risk to the maternal life in many cases.

Abdominal surgery can never be made absolutely without danger, even on properly selected cases in the best hands and under the best conditions, and the greater the failure to realize these ideals the greater the risk to the patient. It is natural that such a surgical procedure as Cesarean section, which in its early days was attended by an appalling mortality and has of late been so perfected as to show a greater improvement in results than almost any other surgical procedure, should be enthusiastically received and for a time at least overdone. The time has now come, however, to realize that the pendulum has swung too far and that sane obstetrics demands that the indiscriminate application of the operation should be checked. The safety of the community demands that women in childbirth should be protected against the ill-judged surgical enthusiasm of the untrained obstetrician. It is better that a few babies should be lost at the time of delivery than that an equal number of mothers should be sacrificed for the sake of the fetal life, as would seem to be the fact under modern conditions.

To take one single example of the indications for which Cesarean section is now widely advocated, let us consider the results in eclampsia. In a paper reporting the results of Cesarean section in eclampsia in 1888 Halburtsma reported a 75 per cent. mortality. With improvement in the technic of the operation and in the treatment of eclampsia the mortality has been gradually lowered until today the mortality of Cesarean section in eclampsia is between 25 per cent. and thirty per cent. Mortality in eclamptic patients delivered by other surgical methods is approximately 20 per cent., and the mortality in cases treated by medical methods, surgery being avoided whenever possible on the theory that the patient who is having convulsions is already in a condition of shock and that radical methods of delivery add shock to shock, the mortality is in the neighborhood of 10 per cent. Yet today the majority of consultants who are asked to see a case of eclampsia unhesitatingly recommend Cesarean section for immediate delivery. This is partly due to the fact that the operation is exceedingly easy from the standpoint of the surgeon, and it seems logical to end the pregnancy as promptly as possible, since it is recognized that eclampsia is a manifestation of a toxemia dependent on pregnancy. The fact that the patient is always toxic, and has often been so shocked by the convulsions as to be in no condition to stand the strain of delivery by any method, is lost sight of, as is also the fact that abdominal surgery on a toxic patient with partial or nearly complete suppression of urine carries with it a grave risk even though the patient's general condition seems to be fairly satisfactory. It is fair to say at the present time that Cesarean section is the most fatal single means of treating eclampsia which we have at our command, and instead of being almost universally employed it should be avoided whenever possible. Cesarean section in cases of toxemia which have not reached the eclamptic stage carries with it much less risk, and may in certain instances be the operation of selection if delivery is indicated, but laparotomy on toxic cases will never give ideal results and can only be selected as the lesser of two evils rather than as an ideal procedure.

Many other similar examples might be adduced to show the abuse of Cesarean section, which is one of the best operations which we have for proper cases, but this single one will serve.

No improvement can be expected until the men who take care of obstetrical complications are willing to qualify themselves to arrive at a mature judgment as to the needs of the individual patient, irrespective of the conditions present, and to devote such time to the care of the patient as may be necessary instead of rushing to an immediate delivery by the most rapid

means possible so as to be ready for the next case. The ease with which delivery is accomplished combined with the great saving of time which accrues from abdominal delivery, has temporarily clouded the main issue, which is and must always be the best interests of the patient rather than of the surgeon, but the conscientious obstetrician must remember that a training which fits him to perform an operation does not absolve him from the responsibility of only performing that operation when the interests of the patient, rather than his own, are advanced by it.

IS THERE MORE FOR THE STATE BOARD TO DO?

ALTHOUGH the Abrams claims and theories have been exposed quite generally throughout this country it is reported that there are several persons using the Abrams machinery in this city and securing considerable business. A person who claims to have been familiar with the work done in one establishment reports an attendance of 80 to 100 patients per day.

Since this method has been discredited by the medical profession and scientists and is regarded as unsound in every particular, the disciples of Abrams must themselves be dupes or frauds.

Since the Board of Registration in Medicine felt warranted in dealing with Sheppard we can see no reason for ignoring the practice of the other followers of Abrams. The creation of the Board of Registration in Medicine was for the purpose of providing reasonably safe medical practice for the people of Massachusetts. The Abrams method, it is believed, fails to do this, and the gullible innocents should be protected from their own folly.

However the general public may feel, Sheppard has a right to contend that he is a martyr if others of the same class are allowed to practice without investigation.

It is a common function of the government to save its people from the danger incident to ignorance.

EMPLOYMENT FOR MEDICAL STUDENTS.

IN another column is published a notice from the Appointments Bureau of the Harvard Medical School calling attention to the fact that many students need employment during the summer and school year in order to help defray their expenses in the School. It is always a gratification to know that an institution is attracting students who value the instruction it offers to such an extent that they are willing to make unusual efforts to obtain it. It is also a gratification to know that we may often be able to aid these students in gaining their education with mutual advantage to them and ourselves.

Any physicians who can give employment to medical students or know where their services may be of value are urged to communicate with Dr. Denny.

RICKETS IN THE PREMATURE INFANT.

PARK, in *Physiological Review* for January, 1923, discusses the peculiar susceptibility of the premature infant to rickets and tetany. Of at least part responsibility is the fact that premature infants are closely wrapped and often kept in dark and poorly ventilated rooms with less exposure to fresh air and sunlight than is the case with children born at term.

Of further importance in explaining this susceptibility are the observations made by Hamilton on the metabolism of premature infants. During the last three months of fetal life a storage of calcium takes place in the body of the fetus, which is drawn on in the first few months of life after birth. The premature infant who has been deprived of these calcium-storing weeks of intra-uterine life has no reserve to draw on, and will suffer unless sufficient calcium is provided in the diet. The breast milk is not greatly in excess of the amount actually excreted and cannot contribute to this storage. With the calcium there may be also a phosphorus deficiency.

The chief factor in this susceptibility, however, Park believes, is due to the immaturity of the organism and the great impetus for growth. The premature infant cannot be regarded as normal, and indeed does not overtake the child of the same conceptional age until five or six years have elapsed. Moreover, his growth stimulus is enormous. The premature infant must, therefore, be far more dependent on radiant energy than the child born at term, and suffers more rapidly and severely when deprived of it.

Hansemann, in 1906, in the greatest paper written on the etiology of rickets, perceived that man in his struggle for existence against the forces of nature had created a whole fabric of abnormal conditions, and in so doing had altered his own habits and ways of living as completely as he had altered the habits and ways of living of the domestic animals which he had made dependent on him. "Not alone does man domesticate animals, but has domesticated himself, a fact clearly recognized by Darwin." According to Hansemann, rickets is the direct result of domestication, and a penalty that man pays for the artificial structure which he has created.

TENTH ANNIVERSARY OF THE PETER BENT BRIGHAM HOSPITAL.

THIS year marks the decennial anniversary of the opening of the Peter Bent Brigham Hospital. This is a short period in the life of a hos-

pital. However, it is altogether fitting that institutions should give an account of their stewardship from time to time. It is a time of looking back to see what has been accomplished, and still more important, it is a time of inspiration for more and greater progress in the future. Exercises to commemorate this occasion were held at the hospital May 24th to 26th, inclusive. Also, a reunion of the hospital alumni, both doctors and nurses, was held at the same time. A very representative gathering of former staff physicians and graduate nurses came from various states. Seventy-eight nurses and sixty doctors returned, which is a very creditable number, considering the youth of the institution.

Each day of the reunion, a series of clinics and scientific papers were given by present and former members of the staff. These covered a wide variety of subjects and were of special interest as some new and important investigations were reported. One of the greatest things that any hospital can do is to encourage a scientific and friendly spirit among its workers. The series of papers gave evidence that the Peter Bent Brigham Hospital has fostered a genuine interest in the care of patients as well as in the advancement of the medical sciences.

The occasion was not without its social aspect: the first evening, the resident staff and nurses' training school gave a home talent show which was reminiscent of the cinema and ye old time minstrels. The second evening, a dance was given in honor of the alumni. Tea was served each afternoon by the Nurses' Alumnæ Association. A notable festivity marked this pleasant affair on the third day, when a birthday cake was received from the staff of St. Bartholomew's Hospital, London, which is just now celebrating its eight hundredth anniversary. Mr. George Gask, surgeon-in-chief of this famous hospital, was surgeon-in-chief *pro tempore,* at the Peter Bent Brigham Hospital in 1921. The afternoon of the third day, a baby contest was held. The entries were the sons and daughters of present and former members of the staff. A loving cup was won by Sammy Sturgis, son of Dr. and Mrs. Cyrus C. Sturgis of Brookline. Also a tennis tournament was played, surgeons *vs.* medical staff, in which the latter were winners.

Dr. Henry A. Christian, chief of the medical service, welcomed the alumni back, and Dr. Harvey Cushing, chief of the surgical service, gave a farewell talk at the close of the meetings.

The success of the reunion was attested by the fact that everyone present was in favor of holding another such gathering in five years.

THE SHEPPARD-TOWNER ACT.

It is reported in the daily papers that the United States Supreme Court finds that it has no jurisdiction in the case of the appeal of this Commonwealth for an opinion as to the constitutionality of this act.

This decision is a surprise, for, although everyone must respect the finding of the court and concede its wisdom, it becomes necessary for very many people to adjust themselves to this interpretation of law. The common understanding has seemed to be that whenever a state finds that a federal law seems to be unjust that the status of that law could be defined by the courts. In this particular instance permission had to be obtained before the contention of this State could be heard, and now that it has been heard the court finds that it cannot clarify the situation.

To the ordinary mind this seems to indicate the desirability of readjusting the machinery of the law, for we find ourselves taxed for the maintenance of a scheme which we believe to be unfair and without just consideration of the rights of a state. Some lawyers have contended that since we have not yet been injured, we have no standing. If this reasoning should be applied to health problems one would not adopt preventive measures until actual damage had been suffered. Unless our legal department can find some other method of approach this act will be operative, we will pay the tax for the maintenance of this bureau, and suffer the irritation of being obliged to contribute to a propaganda for maternity and infant welfare in the other states over which we have no control and on which we can exert very little influence.

Even so, we hope that we will maintain our self-respect and never become a party to a system which will be of no appreciable advantage to us and an experiment for the others.

Unless these plans for buying the support of the states by bounties can be stopped the functions of the states will grow less, initiative will be stifled, and paternalism under political control will rob us of many opportunities for independent action. Our standards will be established for us and the national melting-pot will make an amalgam of our institutions. There is undoubtedly great joy in Washington, for another bolt has been welded into the structure of national sovereignty.

MEDICAL SCHOOL NUMBER OF THE HARVARD ALUMNI BULLETIN.

The issue of the *Bulletin* for May 31, 1923, is devoted almost entirely to affairs of the Medical School. It contains an article by Dr. Francis Rackemann on "A Medical School Dormitory," one on the "Teaching of Medicine at Harvard" by Dr. Henry Christian, and one on the "Teaching of Surgery" by Dr. Elliott Cutler, besides a number of briefer articles on matters pertaining to the school. This number of the *Bulletin* should be read by everyone interested in the Medical School and in medical education. It is a valuable contribution.

Miscellany.

AN APPEAL TO THE MEDICAL ALUMNI OF DARTMOUTH.

Dr. Frederic P. Lord, Secretary of the Dartmouth Medical Alumni Association, has brought to the attention of the Alumni the advisability of reëstablishing the medical school on a full term basis. On May 24, 1923, he issued another appeal in which was contained replies received from a former communication. His report is in part as follows:

"Seventy-eight replies were received, of which seventy-three were in favor of reëstablishing the four-year medical school, and five were against this course. Two of the five were unequivocally opposed, while the others believed it not to be feasible.

"The committee, appointed by the medical faculty to take up the question of the future status of Dartmouth Medical School before the Trustees of the College, consisting of Professor C. C. Stewart, Professor Percy Bartlett and the writer, as chairman, met the Trustee committee, composed of Mr. Fred A. Howland, Mr. Clarence B. Little, and Mr. E. K. Hall, as chairman, on May 2, 1923, at Hanover. The faculty committee presented a full report of the medical situation, including your letters, which were freely quoted from, and which were turned over in full to the Trustees for their benefit. Following this conference the Trustees, as a whole, voted, as follows:

" 'Voted that the Trustees believe that the continuance of the Medical School is essential to the welfare of the College, and that the restoration of the last two years of the medical course is desirable. They therefore continue the committee, which has been examining the relation of the School to the College, and direct it to make further examination of the subject and to make a later report.'

"At its annual meeting on May 23, 1923, the New Hampshire Medical Society unanimously voted:

" 'That this Medical Society go on record as favoring the establishment of a full four-year medical school in this State.'

"Detailed preliminary plans are under consideration for such a school and the financial side of the problem is under serious consideration. It is well understood that such a large undertaking cannot be met by the medical alumni, and there is no intention of asking them to do so by any campaign for their subscriptions for this purpose.

"This note is sent out as a matter of interest to keep you informed as to the situation of your school. It is only a start, but it is an encouraging beginning; it may take a long time to bring about results, if at all, but it is a big step in that direction.

"The Secretary was unable to write a personal letter to each of the alumni who responded to his request for their opinion about a four-year school, and he is obliged to ask your kindness in considering this letter as his grateful acknowledgment of those letters, which were of very real value by their suggestiveness and encouragement.

"The action of the Trustees, here reported, gives us added interest and incentive to attend our One Hundred and Twenty-fifth Anniversary celebration next fall, where the entire subject will be thoroughly looked into and discussed. Plan for this occasion, which promises to be a real affair, and look for a detailed notice soon."

CYCLES OF PANDEMIC INFLUENZA.

An important contribution to the history of pandemic influenza has been made in the study by Eichel of the cycles of this disease as indicated by approximate statistics extending back to the year 1500. Dr. Eichel is one of those who holds to the view that interepidemic influenza is essentially identical with the pandemic disease, and he comes to the exceedingly disturbing conclusion that its pandemic cycles are progressively shortening with the passage of the centuries. The five major pandemics are indicated by his analyses beginning respectively in 1557, in 1729, in 1824, and in 1889 and in 1915. The corresponding intervals between these pandemics, it will be noted, are 172, 95, 65 and 26 years respectively. If the tendency to a shortening of the interepidemic period is a continuing one we may well hope that the investigations recently reported from the Rockefeller Institute may open the way to a more effective control of this disease than has been possible in the past. —*The Nation's Health.*

THE QUESTION OF GARBAGE DISPOSAL IN BOSTON.

The question of garbage disposal in Boston has been a controversial one for many years. The present practice of reducing the garbage and dumping of the other wastes on land was severely criticized by special commissions in 1908 and 1910, but when the old contract expired in 1922 a special commission of which Health Commissioner Woodward was chairman, recommended that the city enter into another ten-year contract with the garbage reduction company. A recent report by Mr. George A. Johnson[1] indicts the present system in very vigorous terms emphasizing the practical difficulties involved in the separate collection of garbage, ashes and rubbish and the nuisance created by the reduction plant on Spectacle Island. He

[1]Abstracted in the Boston City Record, Saturday, March 3, 1923.

believes that the present collection costs are unnecessarily high, particularly in those districts where collection is carried on by the city itself rather than by contract, and he strongly recommends that the city come to some agreement with the reduction company by which the contract can be broken. The alternative process which he proposes is the construction of eight incinerators of the type which has proved so successful in Montevideo and the burning in these incinerators of mixed refuse with the use of power for electric lighting. The figures given in Mr. Johnson's report show slight discrepancies, but as we understand them the table below indicates the collection and disposal costs under the proposed plan as compared to the present system.

	Proposed Plan. Gross.	Net.	Present Plan.	Saving.
Collection	854,000	864,000	1,326,000	461,000
Disposal	864,000	366,000	454,000	88,000
Total	1,728,000	1,230,000	1,780,000	549,000

Mr. Johnson believes, as these figures indicate, that the cost of collection can be very substantially reduced by having it all done by contract, and by shortening the hauls through the construction of eight destructor plants. He also believes that incineration will prove more economical than the present disposal system, but this later conclusion rests, as will be noted, on the assumption of a very substantial return from the use of the steam produced, a return which has never been realized in any American city.

The Montevideo plant has been recently described in a special report by George F. Stall to the Common Council of the city of Milwaukee under date of September 6, 1922. It is a high temperature incinerator of the "Balmer" type which differs from other incinerators in the general simplicity of arrangement and in the provision of special storage bins through which the forced draft is conducted to eliminate the possibility of odors. The Montevideo plant during its first year of operation consumed 151 million pounds of garbage and refuse at an estimated cost of $0.53 per long ton and with marked freedom from nuisance.—*The Nation's Health.*

REPORT OF LAWRENCE GENERAL HOSPITAL.

THE Annual Report for 1922 of the Lawrence General Hospital shows a continued activity in that institution. The hospital is a private institution, with a capacity of 130 beds and 17 cribs. Patients in the free beds are cared for by the staff, of which Dr. George B. Sargent is president, and Dr. J. Forrest Burnham is secretary. Private patients may be sent in and attended by any physician in good standing.

The hospital is in need of a new maternity building and more private rooms, at an estimated cost of $100,000.

During the year covered by the report, 2362 patients were admitted, with a total death rate of .0663, and death rate exclusive of those moribund on admission of .0361. One thousand and three operations were performed.

SEVENTH ANNUAL REPORT OF THE PROVIDENCE CITY HOSPITAL.

THIS report, which covers the years 1916-1921, shows a steady increase in the work done at the Providence City Hospital. The institution, which was opened in March, 1910, was intended primarily to care for cases of contagious disease, 80 to 90 per cent. of the admissions falling into this class. During 1921 the total number of patients treated in the hospital was 1274. An out-patient department, with evening clinics for tuberculosis and venereal disease, and several outlying and affiliated clinics enlarge the scope of work of the hospital to a material degree. It is encouraging to note that the hospital has had no difficulty in securing an adequate supply of pupil nurses to carry on the work.

ANNUAL REPORT OF THE CANCER COMMISSION OF HARVARD UNIVERSITY.

THIS report deals with the activities of the Collis P. Huntington Memorial Hospital for Cancer Research and of the Laboratories of the Cancer Commission of Harvard University for the year 1921-22.

The outstanding feature of the report is the announcement that the new wing of the hospital, a description of which appeared in the JOURNAL at the time of its dedication, has been completed and put into active service.

The director, Dr. R. B. Greenough, comments upon the work of the various departments of the hospital and describes briefly the results of the laboratory investigations which have been carried on.

In the hospital, 1636 new patients were received during the year, as compared with 1420 in the preceding 12 months. There were 7331 out-patient visits, and 753 operations. Twenty deaths occurred in the hospital, with 11 autopsies. Of the patients coming to the hospital, 28.2 per cent. lived more than 40 miles from Boston.

The clinical work of the hospital has consisted of diagnosing cases sent in consultation, of treating by radium alone or by radium plus operation such cases as were suitable for this form of therapy, and of treating by the high-voltage x-ray machine developed by Dr. Duane selected cases of malignant disease.

In a number of lines active coöperation has been arranged between the clinics at the Huntington Hospital and those at the Massachusetts General, each supplementing the other. About

one-quarter of a gram of radium belonging to the Massachusetts General Hospital is kept at the Huntington Hospital, where emanations are extracted from this radium and made available for use by the staff of the former hospital.

The Research Fellow in Bio-Physics, Professor W. T. Bovie, reports work in his laboratory by Dr. Stuart Mudd on electrical endosmosis, by Mr. Walter Hughes on the potential difference existing on two sides of a thin glass wall in contact with electrolytes on either side, by Miss Daland on the effect of radiation on bacteria, and by Dr. Bovie on the effect of light on the eye of the frog.

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

THE monthly *Bulletin* of this Society for June has for its slogan: "Every Member Get a Member." There is therein published testimonials from many prominent people. The one reproduced below conveys cogent reasons for supporting this Society:

WHY I HELPED START THE SOCIETY.

I have done what I could to further the work of the Massachusetts Society for Mental Hygiene because I have believed that the mental diseases cause more chronic suffering to civilized man than any other diseases, are more inheritable than any other, and cost the community more than any other for the examination, segregation, housing, and feeding of their victims. I have also observed that dread of inheriting mental disease which has occurred in their families makes miserable the lives of many persons who never become actually insane.

For these reasons I wish to support the present effort of the Massachusetts Society for Mental Hygiene to increase its membership.

CHARLES W. ELIOT,
President-Emeritus, Harvard University.

REGISTRATION UNDER THE HARRISON NARCOTIC LAW.

FORMS for the renewal of registration under the Harrison Narcotic Law, as amended, have been mailed from the office of Internal Revenue Collector Malcolm E. Nichols with instruction that they are to be filed with proper remittance on or before July 1. Those who have not received the forms by mail should apply for them at once and file them in time to avoid the penalties imposed for being delinquent.

The notices sent with the registration forms emphasize the importance of registrants in Classes 3 and 4 preparing an inventory of all taxable narcotic drugs in their possession on the date of application, or an inventory of any date between December 31 and the date of application, which is to be filed with the completed blank. The original copy of this inventory is to be kept on file by the applicant and the duplicate forwarded to the Collector.

Separate forms were distributed for registration in Class 5, which is required of all persons who dispense or deal in untaxed narcotic preparations. No additional tax is required for this registration but a separate return must be completed and filed.

It is important to remember that the amount of tax is to be forwarded with the application. As postage cannot be accepted and currency may be lost in transmission Collector Nichols urges applicants to make payments by certified check or money order. Certified checks are required in place of personal checks as money-value stamps are issued to all registrants and the Collector cannot let them out of his possession until the actual cash value is received.

AIR POLLUTION.

THE *Bulletin* of the Chicago School of Sanitary Instruction has recently shown that, added to the economic loss from wasted heat units in smoke, the "smoke fogs" from houses and factories of large cities may also become a definite health hazard.

Thus, in Glasgow, as winter comes on, the death rate increases disproportionately to other towns with the same housing conditions, etc., but with different atmospheric conditions. This increase is mainly in diseases of the respiratory organs, and it is believed that the increased air pollution from smoke is a definite contributory factor.

FELLOWSHIPS IN PSYCHIATRY.

As a result of a gift from the Commonwealth Fund to the National Committee for Mental Hygiene, the Division on the Prevention of Delinquency has a fund for fellowships in psychiatry. Those securing fellowships will be placed under training in the clinics now being conducted by this division. The object of the fund is to prepare properly qualified psychiatrists for positions in connection with permanent clinics that are now being organized through the activities of the demonstration clinics conducted by the National Committee for Mental Hygiene. The fellowships will be awarded by a committee composed of Dr. Thomas W. Salmon, Mr. Barry C. Smith, and Dr. Frankwood E. Williams. Those interested in securing information regarding the fellowships may address Dr. V. V. Anderson, Director of the Division on the Prevention of Delinquency, the National Committee for Mental Hygiene.—*Mental Hygiene Bulletin.*

ETIOLOGICAL STUDY OF ANESTHETIC DEATH.

Bifiku Tokumitsu, in the Tokyo *Medical News,* reports having examined the biological attitude of chloroform and ether, and discovered that the former affects not only the central nervous systems but also the functions of the suprarenal glands, for it lowers both the blood pressure and the secretion of adrenalin, while the latter would sometimes augment and at other times lower the secretion of adrenalin, and it affects the central nervous system as the former. Thus if chloroform should be administered to those cases having defects in the suprarenal glands, *e.g.,* thymicolymphatic constitution, it would immediately endanger the life of the patient.

THE GREATEST THERAPEUTIC NIHILIST.

The greatest therapeutic nihilist is the fogy physician who rejects the teachings of bacteriology and public health, who refuses to give immunizing doses of diphtheria antitoxin or the toxin-antitoxin, who refuses to vaccinate against smallpox and typhoid, who fights reasonable quarantine measures, who does not believe that malaria and yellow fever are mosquito-borne, and who thinks that syphilis and tuberculosis must be tolerated rather than cleaned up by a campaign of prevention. Such physicians, even though estimable men, are positive menaces to the public health.—*The American Physician.*

The following circular has been sent to the members of the Essex North District Medical Society:

An History of the Massachusetts Medical Society, 1781-1922, 400 pages, by W. L. Burrage, M.D., its Secretary, is now in printer's hands, for delivery Oct. 1, 1923, and is sold at cost of publication, namely, $6.00 (see BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. 188, No. 21, May 24, 1923, page xv of the advertising section). Essex North District Medical Society has voted to appoint a member in each city and town to solicit subscriptions among members and non-members. Please signify your desire to subscribe to the undersigned as soon as possible.

Essex North has also voted to appoint the above same member to solicit orders among all M.D.'s in its territory for the American Medical Association Physicians' Automobile Emblem, for replacing the discredited green cross. Price to the Society in quantity orders is $1.20 each, prepaid. (See BOSTON MEDICAL AND SURGICAL JOURNAL, as above, page 826.) Kindly send check for the number required to the undersigned as soon as possible.

J. FORREST BURNHAM, M.D.
567 Haverhill St., Lawrence, Mass.

AMERICAN MEDICAL ASSOCIATION.

ARTICLES ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY.

During May, the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-official Remedies:

Connaught Antitoxin Laboratories:
Insulin—Toronto—5 c.c. vials, 5 units in each cubic centimeter; 5 c.c. vials, 10 units in each cubic centimeter.
Mallinckrodt Chemical Works:
Arsphenamin—Mallinckrodt: Ampoules, 0.1 gm., 0.2 gm., 0.3 gm., 0.4 gm., 0.5 gm., 0.6 gm.. 1.0 gm.
Barbital—M. C. W.
Cincophen—M. C. W.
Mercuric Cyanide—M. C. W.
Quinine Ethylcarbonate—M. C. W.
Parke, Davis & Co.:
Pollen Extract Ragweed—P. D. & Co.
Pollen Extract Timothy—P. D. & Co.
Nonproprietary Article:
Insulin.

MAN'S LONG QUEST.

MR. KIPLING AND THE SURGEONS.

The anniversary of the birth of John Hunter was celebrated by a dinner at the Royal College of Surgeons of England in Lincoln's Inn Fields. Sir Anthony A. Bowlby (president) was in the chair.

In accordance with custom, "The Memory of John Hunter" was proposed by the chairman, and pledged in silence.

The chairman proposed "The Visitors," and the Lord Chancellor replied.

Mr. Rudyard Kipling, proposing "The Hunterian Orator" (Sir J. Bland-Sutton), said his excuse for speaking in such an assembly was that he was by calling a dealer in words, and words were, of course, the most powerful drug used by mankind. He continued:—

"There is a legend which has been transmitted to us from the remotest ages. It has entered into many brains, and colored not a few creeds. It is this: Once upon a time, or rather, at the very birth of Time, when the Gods were so new that they had no names, and Man was still damp from the clay of the pit whence he had been digged, Man claimed that he, too, was in some sort a deity. The Gods were as just in those days as they are now. They weighed his evidence and decided that Man's claim was good—that he was, in effect, a divinity, and, as such, entitled to be freed from the trammels of mere brute instinct, to enjoy the consequences of his own acts. But the Gods sell everything at a price. Having conceded Man's claim, the legend goes that they came by stealth and stole away this Godhead with intent to hide it where Man should

never find it again. But this was none so easy. If they hid it anywhere on Earth, the Gods foresaw that Man, the inveterate hunter—the father, you might say, of all hunters—would leave no stone unturned or wave unplumbed till he had recovered it. If they concealed it among themselves, they feared that Man might in the end batter his way up even to the skies. And, while they were all thus at a stand, the wisest of the Gods, who afterwards became the God Brahm, said: 'I know. Give it to me!' And he closed his hand upon the tiny unstable light of Man's stolen Godhead, and when that great hand opened again, the light was gone. 'All is well,' said Brahm. 'I have hidden it where Man will never dream of looking for it. I have hidden it inside Man himself.' 'Yes, but whereabouts inside Man have you hidden it?' all the other Gods asked. 'Ah!' said Brahm, 'that is my secret and always will be unless and until Man discovers it for himself.'

"Thus does the case stand with Man up to the present. Consider for a moment the pathos of the poor brute's position. You all know the common formula for him. 'Born of woman, on woman designed to beget his like—the natural quarry of the Seven Deadly Sins, but the altar of an inextinguishable hope.' Or, more scientifically (I regret I am not a scientific person) he might be defined as 'An imperfectly denatured animal intermittently subject to the unpredictable reactions of an unlocated spiritual area.'

"And it is just this search for this unlocatable spiritual area, whether it be a growth or a survival, which has preoccupied man from that day to this. The priest and the lawgiver have probed and fished for it through all the ages; but, more than any other, through all the ages, the leech, the medicine-man, the healer has been hottest on its track. He has searched wherever he dared, openly or furtively, in safety or at the risk of his life. In the early days the astrologer-physician, as he called himself, dreamed that the secret of man's eternal unrest was laid up in the sun, moon, and stars; and consequently, since all created things were one in essence, that a universal medicament for man's eternal woes would be discovered upon earth. So he searched earth and the heavens for those twin secrets and sacrificed himself in the search as a matter of course.

"Later, when the embargoes on the healing art were lifted, when at last he was permitted to look openly into the bodies of mankind, the nature of his dreams changed for awhile. He had found more wonders beneath his knife than earth or the planets had heretofore shown him. And that was barely ten generations ago. Once again, the surgeon, as he had become, renewed his search and, once again, sacrificed himself in the search as his passion drove him. There is no anesthesia so complete as a man's absorption in his own job.

"In the teeth of the outrageous, the absurd disabilities imposed on him, Man, the imperfectly denatured animal, who cannot trust the evidence of his own senses in the simplest matter of fact; whose evidence on the simplest matter is colored by his own iniquities; Man, always the hunter, went up against the darkness that cloaked him and every act of his being, to find out what order of created thing he might be. He called it scientific research. It was the old quest under a new name. But, this time, the seekers who headed it, unlike the priest and the lawyer, admitted that they knew very little. Experience had taught them to be humble. For that reason, their knowledge was increased. They moved forward into areas of the body which, till then, had denied themselves to man's hand. They were turned back, without explanation, from other areas which, as yet, would tolerate no spying. They were bewildered by mysteries which some new marriage of observation upon accident, some predestined slip of the knife, resolved into mysteries profounder still! Is it any wonder that the old dreams came back? The dream of the essential unity of all created things—the dream that, some day, that which men call life might be led into matter which men call dead—the boldest dream of all, that eventually Man might surprise the ultimate secret of his being where Brahm had hidden it, in the body of man. And meanwhile their days were filled, as yours are filled, with the piteous procession of men and women begging them, as men and women beg of you daily, for leave to be allowed to live a little longer, upon whatever terms. Is it any wonder, gentlemen of the College of Surgeons, that your calling should exact the utmost that man can give?"

Sir John Bland-Sutton responded.—The *Times* Weekly Edition (London), February 22, 1923.

News Items.

Change of Office.—Dr. Henry J. Perry and Dr. Walter T. Garfield have removed their offices to 19 Bay State Road, Boston.

Association of American Physicians.—At the annual meeting of the Association of American Physicians at Atlantic City, N. J., May 1-3, the following officers were elected: President, Dr. Charles F. Martin, Montreal; vice-president, Dr. Lewis A. Conner, New York; secretary, Dr. Thomas McCrae, Philadelphia, and treasurer, Dr. Joseph A. Capps, Chicago,—*Science.*

Dr. Frederick P. Gay, professor of bacteriology in the University of California and at pres-

ent chairman of the Division of Medical Sciences of the National Research Council, has received from the Belgian Ambassador, on behalf of King Albert, the decoration of Commander of the Order of the Crown in recognition of his scientific work.—*Science.*

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—At the annual congress of the Ophthalmological Society of the United Kingdom, held in London at the headquarters of the Royal Society of Medicine, April 26 to 28, Dr. George E. de Schweinitz, president of the American Medical Association, delivered the Bowman Lecture on "Certain Ocular Aspects of Pituitary Body Disorders." Dr. de Schweinitz was elected an honorary member of the society.—*Science.*

NEAR EAST RELIEF.—A great shortage of quinine in the Russian Caucasus and Armenia and a consequent alarming increase of malaria fever are reported in dispatches to Near East Relief headquarters in New York.—H. C. Jaquith, overseas director of relief operations, urged that a large shipment of quinine be sent at once, stating that ten thousand kilos were needed in the republic of Georgia alone and that the government has been able to provide only a small fraction of the amount necessary. Many of the people, he said, were able to pay the cost of the quinine but it was not obtainable at any price.

WEEK'S DEATH RATE IN BOSTON.—During the week ending May 26, 1923, the number of deaths reported was 193, against 173 last year, with a rate of 13.07. There were 27 deaths under one year of age, against 18 last year. The number of cases of principal reportable diseases were: Diphtheria, 74; scarlet fever, 117; measles, 270; whooping-cough, 25; typhoid fever, 4; tuberculosis, 38. Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 11; measles, 2; tuberculosis, 3. Total deaths from these diseases were: Diphtheria, 4; measles, 2; whooping-cough, 2; tuberculosis, 9. Included in the above was the following case of a non-resident: Diphtheria, 1.

Obituary.

THOMAS BURKE SMITH, M.D.

The Middlesex North District Medical Society has lost its faithful treasurer of many years' standing in the person of Dr. Thomas B. Smith of Lowell, who died after a long illness with pneumonia, at his home in that city, May 21, 1923, aged 53 years.

Dr. Smith was born in Hartford, Conn., June 7, 1869, was a graduate of Trinity College in the class of 1891 and of Harvard Medical School in 1894. He settled in Lowell at once, joining the Massachusetts Medical Society, and soon became city physician, bacteriologist to the Lowell Board of Health (a position he held for 27 years), and surgeon to St. John's Hospital. In 1917 Governor McCall appointed him medical examiner to the northern district of Middlesex, an office he retained at his death.

He is survived by his widow, six daughters and two sons.

STEPHEN CASPER BURTON, M.D.

DR. STEPHEN CASPER BURTON, a long time practitioner of Pittsfield, died in that city, May 17, 1923, at the age of seventy-two, the end coming as a result of cerebral hemorrhage, a week earlier.

He was born in Lansingburg, N. Y., June 14, 1850, son of Dr. Casper Van Wie and Agnes (McClellan) Burton. He attended Troy Academy and the Troy Preparatory School and studied medicine with Dr. D. D. Buckland of Lansingburg, and Dr. John Swinburne, at the Albany Medical College, Dr. Swinburne being a United States army surgeon. Dr. Burton was graduated from the Albany Medical College in 1880 and for four years thereafter was senior assistant surgeon at the Swinburne Surgical Hospital.

In 1884 Dr. Burton went to Pittsfield as a partner of Dr. Almon M. Allen, who died 18 months later. For many years Dr. Burton had a large general practice, both in medicine and surgery, and often was called in consultation. He was a member of the Berkshire District and Massachusetts Medical Societies. He was chairman of the Board of Health for several years and was the first western Massachusetts physician to make a fight against tuberculosis in cattle. He had been one of the civil service examiners and was Berkshire County jail physician from 1889 to 1920.

In his practice Dr. Burton never spared himself when the call of duty came and he was out in the most tempestuous weather. Measures for public health always received his enthusiastic support. He was fond of outdoor life and went big game hunting each fall in the Adirondacks or Maine. He was a member of St. Stephen's Episcopal Church.

Dr. Burton was twice married. His first wife was Miss Virginia Pingle of Jersey City, N. J., who died in 1900. His second wife was Miss Avis Eldridge, who died in 1912. A son, Ralph G. Burton, by his first wife, died in 1910.

RECENT DEATHS.

The death is reported of Dr. Edward Stearns Johnson, formerly of Chelsea, Mass., at Riverside, Calif., on May 19, 1923, at the age of 59. He was a graduate of Harvard Medical School in the class of 1890.

DR. CHARLES NELSON HART, a retired physician, has died at his home in Marshfield (May 22, 1923), at the age of 73. He was a graduate of the Homeopathic Medical College of Missouri in 1876.

WILLIAM WRIGHT, connected with the Department of Pathology of Harvard Medical School for 33 years, died May 12, 1923. His association with the students was most intimate and his friendship prized by all of them. His contact with the men of each second-year class was so close that he may be remembered by them more generally than is the case even with the faculty.

DR. ELI STONE HANNAFORD, of Readfield, Maine, died at Springfield, Mass., May 15, 1923, at the age of 77. A graduate of Bowdoin Medical School he began practice in Phillips, Me., in 1869, removing to Readfield six years later. He gave special attention to diseases of the chest. He was a member of the Maine Medical Association.

DR. JOHN HENRY COSTELLO, a Fellow of the Massachusetts Medical Society, died at his home in Dorchester, May 24, 1923, aged 49. He had suffered a breakdown in health over a year ago and never recovered. He was a native of Portsmouth, N. H., where he was born, September 27, 1873. Dr. Costello was a graduate of Harvard Medical School in the class of 1897 and had practised in the Field's Corner district of Dorchester ever since. He is survived by his widow.

Correspondence.

AMERICAN MEDICAL AID FOR RUSSIA.

Medical Section American Friends Service Committee.
103 Park Ave., New York City.
May 29, 1923.

Dr. W. L. Burrage, Secretary
Massachusetts Medical Society,
182 Walnut Street,
Brookline 46, Boston, Mass.

My Dear Dr. Burrage:

An earnest effort is being made by the American Medical Aid for Russia, the Medical Division of the American Friends Service Committee (Quakers), to collect money, clothing, instruments, books and journals for our medical colleagues in Russia.

The condition of these men is deplorable. Removed happily by nature of their profession from the political disturbance, they have suffered doubly from the troubles of the last six years in that, while the demands for their assistance have multiplied immensely, they have been almost deprived of medical supplies, indeed, even of the necessities of life. They not only lack the barest necessities of food and clothing, but are terribly in need of drugs, medical and surgical instruments and of books and journals.

The Quakers are in a position to assure American physicians who are willing to assist their Russian colleagues, that contributions will be promptly and efficiently distributed in Russia. Literature will be distributed in co-operation with the Russian Health Department through notices printed in the official bulletin, to the effect that medical literature in English is available and can be had on request. The Quaker relief workers will directly supervise the distribution of this material to Russian hospitals, medical schools and individual physicians.

If every one of us would make his personal effort to help send such money and clothes as he can, to send files of journals which he does not use himself, as well as such medical books and instruments as he can spare, it would be an immense help.

It's not a charity; it's a duty.

Won't you bring the matter before the Association?

Believe me,

Yours sincerely,

W. S. THAYER, M.D.

P. S. The American Friends Service Committee has two warehouses as follows: 108 Dobbin Street, Brooklyn, and 1521 Cherry Street, Philadelphia. Physicians can send to either of the above at their own convenience. It is requested that those who do not care to assume the expense of forwarding books and instruments will communicate with the American Medical Aid for Russia, 103 Park Ave., New York, estimating the bulk and probable cost of shipment of the proposed donation.

FOREIGN LETTER.

Bruxelles, April 10, 1923.

Mr. Editor:

Among the enormous array of papers presented at the Fifth International Congress of Historic Science, now being held in this city, were three excellent articles on medical historical subjects. The first, entitled, "Travelling Oculists in the Belgian Provinces in the Seventeenth and Eighteenth Centuries, as Recorded in the Newspapers of the Time," by Dr. van Scheven-steen, of Antwerp, is interesting. During the Middle Ages the practice of ophthalmology was entirely in the hands of ignorant practitioners. The study of ocular physiology and anatomy, as well as optics, had attained an appreciable degree of development at the universities in the seventeenth and eighteenth centuries, but the practical utility of these studies had not as yet made itself evident in the treatment of patients.

The travelling surgeons of the epoch understood that a judicious exploitation of human suffering offered them an unhoped for source of income. The printing press, which had so powerfully aided in the diffusion of new theories, furnished them with the means for giving themselves credit among the ignorant classes. Their propaganda at first was carried on by means of little tracts which celebrated in hyperbolic terms the skill of the operator.

The seventeenth century saw the beginning of newspapers, but, nevertheless, it was not until the end of this century that medical advertisements began to appear in them.

The first medical advertisement that van Schevensteen has found, after a careful survey of the press, is in the *Courrier véritable des Pays-Bas*, of the year 1686. In it a Venetian, who remains anonymous, refers to the virtues of a balsam for the cure of sprains (page 170, March 13, 1686).

The advertisers of the first few years were usually polyspecialists. They operated cataract, treated the deaf, cut for stone, operated on ruptures, while for other ills they sold panaceas of the most wonderful kinds, without overlooking the teeth and artificial eyes. To this category of humbugs belonged Raussin, father and son, Servatius Cyprianus, Joannes Schauwerman, Ramthum Rotherwel, and a host of others. Beside them may be placed a batch of oculists (specialists), most of them, charlatans of purest dye. Among them may be mentioned Woolhouze, Taylor, Hillmer, Meinsers, Laasser, and de Wenzel. Among the forty-nine quack oculists mentioned was a matron, Catherina Schauwerman.

H. J. Sevilla, of Paris, contributed an interesting paper on "Greek Hippiatry." The author presented a critical analysis of therapeutic formulae inscribed by some veterinary surgeons during the Greek decadence for the treatment of pulmonary affections in horses. Pharmacy, a close science to therapeutics, is always in presence of two principal subjects, namely,

qualitative chemistry and dosage, so that the author has attempted to solidly base his study on chemical metrology, and completes his arguments by including biological data. He successively referred to the internal use of opium and hyocyamus, assa foetida, gum ammoniac, resin of turpentine, sulphur and the sulphides of arsenic in the treatment of bronchitis, pneumonia, pulmonary emphysema, and asthma in horses.

He concludes that certain veterinary surgeons of the decadence resorted to these "simples," which are endowed with an undeniable activity, and these men also knew how to exhibit therapeutic doses to the animal under treatment. Very conclusive arguments were put forward showing that these efficacious agents were known and employed by the specialists in flourishing Greece whose duty was to care for horses. The author ends by saying that these therapeutics, which had attained appreciable perfection after a long evolution of time, would have become stabilized two thousand years ago if they had evolved in an era of peace and social prosperity.

In their paper on "Three Historians of Psychiatry," Drs. Laignel-Lavastine and Vinchon have discussed three well-known men, namely Ulysse Trélat, Calmeil, and Morel.

The first, Trélat, was the first to understand the utility of historic study for the specialized practitioner. Faithful to tradition of the great commentators of the Renaissance, he studied the ancient masters of medicine and has left us a sufficiently clear analysis of them for anyone desirous of knowing their doctrines and therapeutic measures—still rational today.

Calmeil presents a more modern turn of mind. He studied and developed Hecquet's book on the "Naturalism of Convulsions," passing parallelly in review the dogmatic works and the great epidemics of mental contagion from the fifteenth to the nineteenth centuries.

Morel, in the strict sense of the word, was not an historian. His writings are scattered throughout his various books: *Etudes Cliniques, Traité de Médecine Mentale, Traité de Dégénérations.* In his *Etudes Cliniques*, the descriptions of the old writers are intimately mixed with those of Morel himself, while in the *Traité des Dégénérations* there are abundant documents relating to the history of various intoxications. Morel also undertook a study on the German philosophic physicians in collaboration with Laségue.

To sum up, a beginning of the history of psychiatry had been carried very far in France during the first half of the nineteenth century, and it is to be regretted that it was not continued. Certain clinical entities, such as mental confusion, would have been described much earlier if Galien's work on *Phrensy* had not been forgotten.

CHARLES GREENE CUMSTON.

THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

June 2, 1923.

To State and Provincial Chairmen and Regional Directors:

The time for the San Francisco meeting of the American Medical Association, June 25-29, is fast approaching, and your Cancer Society is planning certain definite things in connection with it. If you are to be there, we shall expect to see you at one or all of the following places:

1. *Dinner Conference for Cancer Workers.* This will be the most important from the point of view of discussing mutual problems and exchanging ideas. It is being arranged by Dr. A. R. Kilgore, our California chairman, at the Fairmount Hotel, Thursday, June 28, at 7 P. M.—a "Dutch treat," not in excess of $3.50. Dr. Rush will be present and hopes to have a brief account of work and methods from each representative and will endeavor to answer questions. An explanation of the district cancer campaigns to begin next fall will be presented and occasion had for a full discussion of organization plans and the activities proposed to be carried out. Come "as you are." Bring with you any active committeemen who may be in San Francisco.

2. The Society has accepted space in the Scientific Exhibit. A new hand-done exhibit will be shown for the first time. Visit the exhibit and give us your opinion of it.

3. The cancer film, "The Reward of Courage," will be shown several times on the motion picture program. Urge those who may be interested in the subject to see it.

4. Those who reach San Francisco on Sunday, June 24, are reminded once again of the big public cancer meeting to be held in the auditorium at 8.15 P. M., under the joint auspices of the American Medical Association, the California State Medical Society and the American Society for the Control of Cancer. Dr. Kilgore is making up an "all-star" program, with Dr. de Schweinitz presiding, and, he hopes, with one of the Mayo brothers as the principal speaker.

F. J. OSBORNE, *Executive Secretary.*

NOTICES.

REMEMBER!

The annual registration under the Harrison Narcotic Act expires June 30. Renew before that date.

EMPLOYMENT FOR MEDICAL STUDENTS.

There is a need for employment for a number of Harvard Medical students during the summer and school year in order to defray their expenses. If any physician knows of afternoon or evening employment for such students, kindly notify Dr. George P. Denny, Office of the Appointments Bureau, Harvard Medical School, 240 Longwood Avenue, Boston, Mass.

CLINICAL DEMONSTRATION AT THE PETER BENT BRIGHAM HOSPITAL.

On Wednesday, June 20 and June 27, there will be held in the amphitheater of the Peter Bent Brigham Hospital, from 10 to 11 o'clock, a clinical demonstration of diabetic patients, with particular reference to the use of insulin in treatment. All physicians are cordially invited to attend these demonstrations.

HENRY A. CHRISTIAN, *Physician-in-Chief.*

HARVARD MEDICAL ALUMNI ASSOCIATION.

The next annual meeting of the Association will be held at the Harvard Medical School, on Wednesday, June 20, 1923, at 12 noon. This is the day of the Harvard-Yale game and is the day before commencement.

The prime object of this meeting will be to take action on the recommendation of the Council that the report of the temporary dormitory committee be adopted by the Association. This report appeared in full in a recent number of the Alumni Bulletin which was distributed to all graduates.

The meeting will be addressed by Dr. Homer Gage of the temporary dormitory committee, by Dr. David L. Edsall, dean of the Medical School, and by Mr. James C. White, president of the graduating class.

The graduating class has been invited to attend the meeting as guests of the Association.

Luncheon will be served at 12.45 P. M.

ELLIOTT P. JOSLIN, M.D., *President;*
FRANCIS M. RACKEMANN, M.D., *Secretary.*

FIRST ANNUAL REPORT.

SCHICK TOXIN-ANTITOXIN ACTIVITIES OF BOSTON HEALTH DEPARTMENT.

MAY 6, 1922, TO MAY 6, 1923.

Schick Tests	Readings	Positive	Positive Combined	Pseudo	Negative	T. A. T. Injections 1st	2nd	3rd
				COMPLETED CASES.				
30,233	28,167	12,656	1,611	4,087	9,813	12,915	11,649	10,819
				RE-SCHICKS.				
6,947	6,555	795	82	1,068	4,610	716	503	275
				PRE-SCHOOL AGE.				
						318	259	232
				GRAND TOTAL.				
37,180	34,722	13,451	1,693	5,155	14,423	13,951	12,412	11,326

General immunity produced on re-Schicking to date—86.5%

A group of 5,773 children recently re-Schicked shows the following percentage of immunity produced after first, second, and third injections of Toxin-Antitoxin:

Immunity produced after 1 injection of T. A. T.—35.8%
Immunity produced after 2 injections of T. A. T.—65.8%
Immunity produced after 3 injections of T. A. T.—87.7%

CULTURES.

Cultures of Positive Schick Reactors before T. A. T.

Number	Positive	Negative	Percentage
1,663	103	1,560	6.5% Positive

Cultures of Negative Schick Reactors

1,000	57	943	5.7% Positive

Cultures of Positive Schick Reactors 6 months after T. A. T.

1,347	36	1,311	2.7% Positive
4,010	196	3,814	4.96% Positive

Diphtheria cases investigated from December 1, 1922, to date—1,264.

JOHN A. CECONI, *Epidemiologist.*

CASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

WEEK ENDING JUNE 2, 1923.

Disease.	*No. of Cases.*	*Disease.*	*No. of Cases.*
Anterior poliomyelitis	1	Scarlet fever	279
Chicken-pox	144	Septic sore throat	4
Diphtheria	155	Suppurative conjunctivitis	13
Dog-bite requiring anti-rabic treatment	6	Syphilis	28
Encephalitis lethargica	3	Trachoma	2
Epidemic cerebrospinal meningitis	1	Trichinosis	1
German measles	26	Tuberculosis, pulmonary	104
Gonorrhea	77	Tuberculosis, other forms	25
Measles	842	Typhoid fever	9
Mumps	182	Whooping cough	200
Ophthalmia neonatorum	16	Pneumonia, lobar	52

SOCIETY MEETINGS.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

June, 1923:—Annual Meeting of the Association of Women in Public Health will be held in Boston, June 18.

June, 1923:—The Nineteenth Annual Meeting of the National Tuberculosis Association will be held in 1923 in Santa Barbara, Calif., from June 20 to 23, inclusive, in the Recreation Center.

June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Olin West, Chicago, Ill., Secretary.

July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

October, 1923:—Boston Health Show will be held in Boston, October 6-13, inclusive.

October, 1923:—Meeting of the American Health Association will be held in Boston, October 8-13, inclusive.

For list of Officers of the Massachusetts Medical Society, see page viii of the Advertising Section.